Audit Report

SURVEY OF ACQUISITION MANAGER EXPERIENCE
USING THE DOD JOINT TECHNICAL ARCHITECTURE
IN THE ACQUISITION PROCESS

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Abstract
This report is the third and final in a series of reports and discusses the use of an open systems approach in the acquisition process for weapon systems. The first report discusses the extent that acquisition program managers considered and used an open systems approach in the design and development of major defense weapon systems. The second report discusses the extent that DoD planned and implemented DoD Component use of the Joint Technical Architecture (JTA) to help achieve weapon systems interoperability requirements and to support affordability and an open systems approach to weapon system design. This report summarizes the results of Component Acquisition Executive, Program Executive Officer, and program manager responses to survey questionnaires regarding use of JTA in the acquisition process. The open systems approach and JTA are closely linked. In the open systems approach, acquisition program managers and contractors choose commercially supported specifications and standards for system interfaces. JTA specifies a set of primarily commercial specifications and standards that cover information processing, information transfer, content, format, security, and commonality. In August 1996, the Office of the Secretary of Defense mandated that acquisition program managers use JTA for all command, control, communication, and intelligence systems. During November 1998, the Office of the Secretary of Defense broadened the JTA requirement to include all emerging capabilities or changes to an existing capability that produces, uses, or exchanges information electronically; crosses a functional or DoD Component boundary; or gives the warfighter or DoD decisionmaker an operational capability.

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Acronyms

CAE	Component Acquisition Executive
EMD	Engineering and Manufacturing Development
JTA	Joint Technical Architecture
PDRR	Program Definition and Risk Reduction
PEO	Program Executive Officer
PM	Program Manager
USD (AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics

INSPECTOR GENERAL
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August 22, 2001

MEMORANDUM FOR UNDER SECTRETARY OF DEFENSE FOR
ACQUISITION, TECHNOLOGY, AND LOGISTICS
ASSISTANT SECRETARY OF DEFENSE (COMMAND,
CONTROL, COMMUNICATIONS, AND
INTELLIGENCE)
DIRECTOR, JOINT STAFF

SUBJECT: Audit Report on the Survey of Acquisition Manager Experience Using the DoD Joint Technical Architecture in the Acquisition Process (Report No. D-2001-176)

We are providing this report for your information and use. This report summarizes the results of DoD Component Acquisition Executive, Program Executive Officer, and program manager responses to survey questionnaires regarding their experiences in using the DoD Joint Technical Architecture in the acquisition process. No written response to this report was required, and none was received. Therefore, we are publishing this report in final form.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. John E. Meling at (703) 604-9091 (DSN 664-9091) (jmeling@dodig.osd.mil) or Mr. Harold C. James at (703) 604-9093 (DSN 664-9093) (hjames@dodig.osd.mil). See Appendix J for the report distribution. Audit team members are listed inside the back cover.

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Report No. D-2001-176 **August 22, 2001**
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Survey of Acquisition Manager Experience Using the DoD Joint Technical Architecture in the Acquisition Process

Executive Summary

Introduction. This report is the third and final in a series of reports and discusses the use of an open systems approach in the acquisition process for weapon systems. The first report discusses the extent that acquisition program managers considered and used an open systems approach in the design and development of major defense weapon systems. The second report discusses the extent that DoD planned and implemented DoD Component use of the Joint Technical Architecture (JTA) to help achieve weapon systems interoperability requirements and to support affordability and an open systems approach to weapon system design. This report summarizes the results of Component Acquisition Executive, Program Executive Officer, and program manager responses to survey questionnaires regarding use of JTA in the acquisition process.

The open systems approach and JTA are closely linked. In the open systems approach, acquisition program managers and contractors choose commercially supported specifications and standards for system interfaces. JTA specifies a set of primarily commercial specifications and standards that cover information processing, information transfer, content, format, security, and commonality. In August 1996, the Office of the Secretary of Defense mandated that acquisition program managers use JTA for all command, control, communication, and intelligence systems. During November 1998, the Office of the Secretary of Defense broadened the JTA requirement to include all emerging capabilities or changes to an existing capability that produces, uses, or exchanges information electronically; crosses a functional or DoD Component boundary; or gives the warfighter or DoD decisionmaker an operational capability.

Objectives. The primary audit objectives were to evaluate DoD acquisition manager awareness and enforcement of requirements for using applicable DoD JTA standards in the design of weapon systems, to identify problems of program managers using JTA, and to identify opportunities to improve the effectiveness and efficiency of JTA implementation as a tool to help DoD achieve systems interoperability requirements.

Results. Nearly all acquisition managers (Component Acquisition Executives, Program Executive Officers, and acquisition program managers) indicated awareness of the requirement for complying with JTA. All Component Acquisition Executives and Program Executive Officers indicated awareness of DoD Component JTA implementation plans and 76 percent of responding program managers were aware of JTA implementation plans. Program manager responses were largely positive

concerning experiences to implement JTA, but the responses also showed opportunities for improvement. Specifically, of 81 responses from program managers:

- 80 percent indicated that the JTA standards met established quality criteria;
- 81 percent indicated that the JTA standards were at the proper level in the JTA hierarchical structure;
- 22 percent stated that applicable JTA standards were easily identified and extracted, while 68 percent cited moderate effort, and 10 percent cited difficulty;
- 78 percent indicated that JTA guidance was clear on the differences in program office use of the JTA standards designated as mandatory and those standards designated as emerging;
- 62 percent stated that JTA documentation provided clear guidance for determining applicability of standards; and
- 59 percent indicated that JTA requirements were included in at least one acquisition planning document, and 47 percent indicated JTA requirements were included in at least one contract-related document.

Although nearly all responding Component Acquisition Executives and Program Executive Officers indicated that reviews were made of program office compliance with JTA, program manager responses indicated that those compliance reviews only moderately improved the rate of program manager inclusion of the JTA standards requirements in acquisition planning documents and did not improve the rate of inclusion of JTA standards requirements in contracts. The Component Acquisition Executives and Program Executive Officers were more positive than the program managers concerning the impact of the JTA on program execution. Sixty-two percent of responding Component Acquisition Executives and Program Executive Officers indicated that implementing JTA standards was a benefit in program execution, while only 22 percent of responding program managers indicated a benefit.

Management Comments. We provided a draft of this report on July 12, 2001. No written response to this report was required, and none was received. Therefore, we are publishing this report in final form.

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Background

Need for the Joint Technical Architecture. This report is the third and final in a series of reports and discusses the use of an open systems approach in the acquisition process for weapon systems. The first report discusses the extent that acquisition program managers (PMs) considered and used an open systems approach in the design and development of major defense weapon systems. The second report discusses the extent that DoD planned and implemented DoD Component use of the Joint Technical Architecture (JTA) to help achieve weapon systems interoperability requirements and to support affordability and an open systems approach to weapon system design. This report summarizes the results of Component Acquisition Executive (CAE), Program Executive Officer (PEO), and PM responses to survey questionnaires regarding use of JTA in the acquisition process.

The open systems approach and JTA are closely linked. In the open systems approach, PMs and contractors choose commercially supported specifications and standards for system interfaces. JTA prescribes a minimum set of information technology standards that contain consensus commercial standards but also include standards unique to the military and Federal Government. The JTA standards cover information processing, information transfer, content, format, security, and commonality.

In August 1996, the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD [AT&L]) and the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) mandated that PMs use the JTA for all DoD command, control, communication, and intelligence systems, and for the interfaces of these systems to other key assets, such as weapons and office automation systems. During March 1998, USD (AT&L) revised DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) Acquisition Programs," March 15, 1996, to require PM use of the JTA for those programs meeting the criteria of the August 1996 mandate.

In May 1998, the offices of the USD (AT&L); the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence); and the Staff Director for Command, Control, Communications, and Computers, Joint Chiefs of Staff, (the Policy Offices) agreed to broaden the use of JTA to include emerging capabilities, and in November 1998, issued a memorandum promulgating the May 1998 agreement. The memorandum required PMs to use JTA for all emerging capabilities, or changes to an existing capability that produces, uses, or exchanges information in any form electronically; crosses a functional or DoD Component boundary; or gives the warfighter or DoD decisionmaker an operational capability. In January 2001, USD (AT&L) revised DoD Regulation 5000.2-R to broaden the applicability of JTA, as stated in the November 1998 memorandum.

The JTA:

- provides a foundation for interoperability among all tactical, strategic, and combat support systems at the technical architecture level;
- mandates interoperability standards and guidelines for system development and acquisition that will facilitate joint force operations;
- communicates to industry the DoD intent to consider open systems products and implementation; and
- acknowledges the direction of standards developed by industry.

JTA provides interoperability standards that apply to Information Technology and to National Security Systems, which include weapon system segments involving telecommunication and information exchange. DoD operates the weapon system telecommunication and information exchange segments to fulfill military or intelligence missions. Additionally, PMs use JTA to provide commercial standards and specifications needed to enable interoperability and to support an open systems design approach. The JTA does not contain every standard that PMs may need to develop the telecommunication and information exchange segments of weapon systems; therefore, PMs may require additional standards to meet a system's requirements. The DoD JTA mandates the minimum set of standards and guidelines for the acquisition of all DoD systems that produce, use, or exchange information.

JTA defines the service areas, interfaces, and standards (JTA elements) applicable to all DoD systems. The standards and guidelines in JTA are publicly available and, whenever possible, commercially supported. By itself, JTA is not sufficient to achieve interoperability. It is complementary to other DoD programs and initiatives aimed at the development and acquisition of effective and interoperable information systems. These related programs and initiatives include the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance Architecture Framework, developed through the DoD Architecture Coordination Council, the Requirements Generation System, and the initiative for interoperability and supportability of National Security Systems and Information Technology Systems administered through the Joint Chiefs of Staff. Also, to maximize interoperability, DoD must fully implement two additional architectures--the Operational Architecture, which identifies warfighter relationships and information needs, and the Systems Architecture, which relates characteristics and capabilities of individual systems to operational requirements.

Structure of JTA. JTA consists of two main parts: the JTA core and the JTA annexes. The JTA core contains the minimum set of JTA elements applicable to all DoD systems to support interoperability and commonality requirements.

The JTA annexes contain additional JTA elements applicable to specific functional domains or families of systems. Those additional JTA elements are needed to ensure interoperability of systems within each domain but may be inappropriate for systems in other domains.

Appendix A provides details on DoD goals and performance measures in response to the Government Performance and Results Act that are pertinent to this report. Appendix B provides a listing of definitions and terms germane to understanding DoD implementation of JTA in designing weapon systems.

Survey Questionnaires. To accomplish our audit objectives, we developed and distributed survey questionnaires to CAEs, PEOs, and PMs for major defense acquisition programs. Because the acquisition roles and responsibilities of those officials were different, we developed two versions of the survey questionnaire. One version was for CAEs and PEOs, who make policy and exercise oversight over many acquisition programs. The other version was for PMs, who are responsible for managing individual acquisition programs.

CAE and PEO Questionnaire. CAEs and PEOs were asked 14 questions to determine whether the executives and officers:

- were aware of the requirement in DoD Regulation 5000.2-R for acquisition PMs to consider and use the JTA in the weapon system acquisition process;
- evaluated and enforced acquisition PM use of the JTA, where applicable to the design of emerging weapon systems and weapon system upgrades; and
- had ideas for improving JTA application policies and procedures.

The CAE and PEO survey questionnaire is shown in Appendix C.

PM Survey Questionnaire. PMs were asked 24 questions to:

- determine whether PMs had problems in implementing JTA as required by DoD Regulation 5000.2-R;
- document PM opinions on the overall effectiveness of JTA implementation, the completeness and currency of the JTA standard inventory, and the placement of standards in the JTA hierarchy; and
- determine whether PMs had ideas for improving JTA application policies and procedures.

The PM survey questionnaire is shown in Appendix D.

In developing the two survey questionnaires, input was received from the Directorate for Interoperability and the Open Systems Joint Task Force within

the Office of USD (AT&L) and from the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence). The Director for Interoperability endorsed both versions of the survey questionnaire before distribution.

Survey Participation and Universe. Responses were received from 74 percent (17 of 23) of the CAEs and PEOs and 94 percent (81 of 86) of the PMs to whom the survey questionnaires were sent. Because of the high response rates to the survey questionnaires, the survey responses documented the opinions of the majority of the DoD acquisition managers involved in the acquisition of major defense acquisition programs. The respondents included acquisition managers in the Army, Navy, Air Force, and the Office of the Secretary of Defense who managed major defense acquisition programs that were in program definition and risk reduction (PDRR), engineering and manufacturing development (EMD), and production acquisition phases. The major defense acquisition programs included new systems as well as modifications to existing systems. Appendix E lists the offices of the CAEs and PEOs that provided responses to the survey questionnaire and Appendix F lists the PMs that provided responses.

Limitations

Survey questionnaires were not distributed to Acquisition Executives for DoD Components other than the Military Departments and the Ballistic Missile Defense Organization. Also the questionnaires were not provided to PMs for acquisition program categories other than the major Defense acquisition programs. Accordingly, the survey results may not be representative of JTA implementation and enforcement of requirements by those Acquisition Executives and PMs.

Objectives

The primary audit objectives were to evaluate DoD acquisition manager awareness and enforcement of requirements for program use of applicable JTA standards in the design of weapon system segments involving information exchange, to identify problems of PMs using JTA, and to identify opportunities to improve the effectiveness and efficiency of JTA implementation as a tool to help DoD achieve systems interoperability requirements. Appendix A discusses the audit scope and methodology, as well as the prior audit coverage.

Using the Joint Technical Architecture

Nearly 100 percent of responding acquisition managers (CAEs, PEOs, and PMs) indicated awareness of the requirement for complying with JTA. All responding CAEs and PEOs indicated awareness of DoD Component JTA implementation plans, while only 76 percent of responding PMs were aware of the JTA implementation plans. The majority of PM responses were positive concerning use of JTA but the responses also showed opportunities for improvement. Specifically, of 81 responses from PMs:

- 80 percent indicated that the JTA standards met established quality criteria, while 20 percent stated that standards did not meet one or more of the quality criteria;

- 81 percent indicated that the JTA standards were at the proper level in JTA hierarchical structure, while 19 percent indicated that some JTA standards belonged at lower levels because the standards were not applicable to all systems;

- 22 percent stated that applicable JTA standards were easily identified and extracted, while 68 percent cited moderate effort, and 10 percent cited difficulty;

- 78 percent indicated that JTA guidance was clear on the differences in program office use of JTA standards designated as mandatory and those standards designated as emerging, while 9 percent stated that the JTA guidance was not clear, and 13 percent provided no opinion;

- 62 percent stated that JTA documentation provided clear guidance for determining applicability of standards, while 38 percent indicated a need for clarification of JTA guidance, and

- 59 percent indicated that JTA requirements were included in at least one acquisition planning document, and 47 percent indicated that JTA requirements were included in at least one contract-related document.

Almost 100 percent of responding CAEs and PEOs indicated that they reviewed program office compliance with JTA. However, PM responses indicated that those compliance reviews only moderately improved the rate of PM inclusion of JTA standards requirements in acquisition planning documents and did not improve the rate of inclusion of JTA standards requirements in contracts. The CAEs and PEOs were more positive concerning the impact of the JTA on program execution. Sixty-two percent of responding CAEs and PEOs indicated that implementing the JTA standards was a benefit in program execution, while only 22 percent of responding program managers indicated a benefit.

Response Data Analysis

The following sections summarize CAE, PEO, and PM responses to survey questionnaires. The responses to survey questionnaires and our analysis thereof address the following topics:

- awareness of JTA,
- quality and hierarchial placement of JTA standards,
- identification of applicable JTA standards,
- inclusion of JTA requirements in acquisition planning documents and contracts,
- review for JTA compliance, and
- effects of implementation of JTA on program execution and on promotion of system interoperability and use of open systems.

Discussions of the preceding topics and Appendix G include suggestions and comments that acquisition managers offered, in response to the survey request, on JTA use to support developing interoperable and affordable weapon systems. Acquisition manager suggestions, which specifically related to one of the above topic areas, are included at the end of each topic. Appendix G lists 14 other general acquisition manager suggestions and comments on the improvement of JTA that did not specifically relate to one of the above topics. For example, acquisition managers suggested that the Policy Offices:

- allow PMs to be active participants in the JTA standards formation (one respondent),
- conduct JTA training seminars for engineers, system architects, and PMs (two respondents), and
- reconcile the differences between the DoD JTA and the Army and Air Force JTAs or eliminate the Service-unique JTAs (one respondent).

Although audit work to validate acquisition manager suggestions was not performed, the suggestions are provided for information and consideration.

Analysis of the response data for the two survey questionnaires showed that there were varying numbers of survey responses, or baselines, to each survey question. Respondents, in some cases, opted not to answer one or more questions. As a result, the survey results discussed were based on different baselines, depending on the number of respondents who provided responses to each question. The baselines for each question are shown in Appendix H.

Responses to CAE and PEO and the PM questionnaires were analyzed by total baseline and by DoD Component (responses from CAEs, PEOs, and PMs within the Army, Navy, and Air Force). For the PM survey, responses by program acquisition phase were also analyzed (responses from PMs with programs in PDDR, EMD, and production acquisition phases). In reporting the results, responses to the CAE and PEO and PM surveys were summarized by the total baseline responding to each question. Additionally, the acquisition manager responses by DoD Component were discussed if responses from managers in these Components varied substantially (more than 20 percent) from the average for the overall baseline for a question. PM responses by program acquisition phase were also discussed if responses from PMs varied substantially by program acquisition phase.

Awareness of the JTA

Acquisition managers were asked two questions in order to determine awareness of:

- the requirement in DoD Regulation 5000.2-R for acquisition programs to comply with DoD JTA, and
- DoD Component JTA implementation plans.

Additionally, CAEs and PEOs were asked whether guidance was issued to assigned PMs regarding the use of JTA. As discussed below, almost all of the responding acquisition managers stated that they were aware of the requirement for compliance with the DoD JTA and most stated that they were aware of Component JTA implementation plans. Most responding CAEs and PEOs indicated that guidance was issued to assigned PMs regarding the use of JTA.

CAE and PEO Awareness and Guidance. All of the responding CAEs and PEOs were aware of the requirement for acquisition programs to comply with the DoD JTA and the Component JTA implementation plan. Seventy-five percent stated that guidance was issued to assigned PMs on the use of JTA. The awareness of CAEs and PEOs to the JTA requirement is necessary because those executives and officers have the responsibility to evaluate PM use or consideration of the JTA standards in the weapon systems design during program acquisition milestone reviews, periodic progress reviews between program milestones, and other reviews under their management purview. Also, the awareness of CAEs and PEOs to Component implementation plans provides them a management tool to determine whether PMs take a consistent approach to implement the JTA standards. CAE and PEO guidance issued regarding PM use of the JTA standards should increase PM awareness of management expectations for implementing the JTA.

PM Awareness. In response to the question on awareness of requirements for complying with JTA, 96 percent of the responding PMs stated that their program staffs were aware of the requirement for acquisition programs to comply with JTA, while 4 percent of the PMs stated that their program staffs

did not know about the JTA requirement. However, only 76 percent of the PMs who answered the question on awareness of the requirement for complying with JTA acknowledged awareness of the Component JTA implementation plan. Twenty-four percent of the PMs did not know that the Component had a JTA implementation plan.

It is important that PMs are aware of the JTA implementation plan for the DoD Component because it allows for understanding and implementation of the Component processes to assure JTA compliance, to program and budget resources to implement JTA compliance, and to track the JTA implementation progress. Component JTA implementation plans define roles and responsibilities to implement the JTA standards contained in individual acquisition programs. When PMs are aware of the Component JTA implementation plan, the PMs can consider and implement the use of the JTA standards in a consistent manner within the DoD Component. Additionally, JTA implementation plans provide PMs with information for processing a waiver request of JTA standards if they use or plan to use a standard or standards other than those mandated by JTA for system cost, schedule, or performance reasons.

Inconsistent PM implementation of the JTA standards resulting from lack of awareness of the DoD Component JTA implementation plan impedes the DoD Components from maximizing the effectiveness of JTA as a tool for promoting overall DoD system interoperability requirements in individual weapon systems. There were no significant variances in PM responses by DoD Component or by acquisition program phase on awareness of JTA requirements or the DoD Component JTA implementation plan.

Quality and Hierarchical Placement of JTA Standards

The PMs were asked a series of questions to determine whether the established JTA standards met quality criteria, as defined in the JTA Management Plan, April 15, 1997, for inclusion in the JTA hierarchy and whether the JTA standards were appropriately placed in the JTA hierarchy, as defined in JTA Version 3.0, November 29, 1999. If the PMs believed the standards did not meet the quality criteria or were inappropriately placed in the JTA hierarchy, the PMs were asked whether their organizations submitted change requests or comments to a JTA Component representative or through the format provided on the JTA Web home page (http://www-jta.itsi.disa.mil).

Meeting Quality Criteria. The JTA Management Plan requires that standards included in JTA be critical to weapon system interoperability requirements and meet all of the following criteria:

- interoperability: enhance joint and potentially combined Service/Agency information exchanges and support joint activities;
- maturity: technically mature (have strong support in the marketplace) and are stable;

- implementability: technically implementable;
- public: publicly available; and
- consistent with authoritative source: consistent with law, regulation, policy, and guidance documents.

PMs were asked whether the standards applicable to their weapon system met all of the above selection criteria. Overall, 80 percent of the responding PMs indicated that the established JTA standards met all of the above criteria, while 20 percent indicated that certain JTA standards did not meet one or more of the above selection criteria. If JTA standards do not meet the quality criteria, the JTA standards cannot fully achieve maximum effectiveness as a contributor to weapon system interoperability.

Placement of Standards. The placement of a standard within the JTA hierarchy dictates the applicable scope of the standard to the design of weapon systems. The JTA hierarchy, as defined in JTA Version 3.0, November 29, 1999, consists of two main parts: the JTA core and the JTA annexes. Standards contained in the JTA core are applicable to all DoD systems to support interoperability and commonality requirements. Thus, all PMs must use the core standards to design weapon systems. The JTA annexes contain additional JTA standards applicable to specific functional domains or families of systems.

PMs must also use the JTA standards contained in the functional domain in which the weapon system falls, but they are not required to use those standards appropriate for other functional domains. The current version of JTA includes annexes for the following domains: command, control, communications, computers, intelligence, surveillance, and reconnaissance; combat support; modeling and simulation; and weapon systems. JTA also includes subdomains that contain standards covering special interoperability requirements applicable to systems within that subdomain. Overall, JTA contains over 400 standards for PMs and contractors to use.

PMs are required to adopt those JTA standards contained in the relevant subdomain, parent functional domain annex, and the JTA core when designing weapon systems. Overall, most PMs believed that the JTA standards were properly placed in the JTA hierarchy. Specifically, 81 percent of PMs indicated that standards in the JTA core and functional domains were placed at the correct level in the JTA hierarchy. Nineteen percent of the responding PMs indicated that some standards belonged at lower hierarchical levels because the standards were not applicable to all weapon systems. Those PMs indicated the following reasons why some standards belonged at lower levels:

- 5 percent believed that some JTA core standards were not acceptable to meet their weapon system requirements and that those standards belonged at the domain or sub-domain levels,

- 7 percent believed that some standards in the JTA core and the functional domain that were applicable to their weapon system were not acceptable to meet their weapon system requirements and that those standards belonged in sub-domain annexes, and

- 7 percent believed that some standards in functional domains that were applicable to their weapon system were not acceptable to meet their weapon system requirements and that those standards belonged in sub-domain annexes.

PM responses did not vary substantially by DoD Component or acquisition phase.

JTA management councils must continue to exercise care in placing standards into JTA. If JTA management councils place standards too high in the JTA hierarchy, it could lead to PMs submitting excessive numbers of waiver requests or incurring unnecessary costs to implement the JTA standards that are not appropriate for individual weapon systems. Conversely, if JTA management councils place the standards too low in the JTA hierarchy, weapon system interoperability within the DoD and our allies could be adversely impacted.

Submitting JTA Standards Change Requests. PMs who indicated that the JTA standards did not meet one or more of the above quality criteria or that selected standards applicable to their weapon system were not appropriately placed in the JTA hierarchy did not submit change requests or comments to the JTA Component representative or through the format provided on the JTA Web home page (http://www-jta.itsi.disa.mil). Although the majority of responding PMs indicated satisfaction with the placement and quality of the JTA standards, continued feedback from users regarding problems with the JTA standards is essential if JTA is to be an effective contributor to weapon systems interoperability. JTA management councils rely heavily on input from PMs and contractors when making decisions on updating JTA.

Acquisition Manager Suggestions and Comments. Acquisition managers offered the following suggestions and comments regarding the quality of JTA standards.

- The JTA revision cycle does not keep pace with the rapidly evolving commercial industry standards. As a result, PMs may not be able to take advantage of the most appropriate technology for application on weapons systems (two respondents).

- When mandated standards change, PMs need documentation explaining the technical differences between the old and new standards to facilitate PM understanding and use of the new JTA standards (one respondent).

- Remove the hierarchical structure with the pressures to push the JTA standards as high in the structure as possible. The present policy results in mandated standards in functional domains and subdomains where those standards do not satisfy weapon system requirements of the PMs (two respondents).

Identifying Applicable JTA Standards

We asked the PMs a series of questions on the JTA guidance in JTA Version 3.0, November 29, 1999, to determine:

- ease or difficulty in selecting applicable standards and protocols from JTA for use in weapon systems design,
- clarity of guidance relating to program office use of standards JTA classifies as mandated versus those it classifies as emerging, and
- clarity of guidance for determining applicability of the JTA standards to individual weapon systems.

Selecting Applicable Standards and Protocols. PMs were asked to comment on the ease or difficulty with which program office and contractor personnel used the JTA standards and supporting guidance to select applicable standards and protocols for use in weapon systems design. Overall, 22 percent of the responding PMs indicated that it was easy to identify or extract applicable standards and protocols, 68 percent responded that, with moderate effort, program office and contractor personnel were able to identify the applicable standards and protocols; and 10 percent indicated that it was very difficult to search through and identify the applicable JTA standards. PM responses did not vary substantially by DoD Component or by acquisition phase. If JTA is to achieve maximum efficiency and effectiveness as a tool for increasing weapon systems interoperability, it is essential that PMs and contractors be able to readily identify the JTA standards applicable to weapon system designs.

Mandated and Emerging Standards. PMs were asked if the JTA guidance contained in JTA Version 3.0, November 29, 1999, was clear on the differences relating to program office use of the JTA standards classified as mandatory and those classified as emerging. PMs are required to implement the mandated standards applicable to their weapon systems unless program cost, schedule, or performance impacts implementation. If warranted**,** the managers can submit a waiver request to CAE or to the cognizant Office of the Secretary of Defense Principal Staff Assistant documenting the cost, schedule, or performance impacts to the system that could occur through implementing specific JTA standards. The CAE or Principal Staff Assistant may grant waivers, but for mission-critical or mission-essential programs, those Officials must also forward granted waivers to the Offices of USD (AT&L) and the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) as the DoD Chief Information Officer, for review and concurrence.

Emerging standards are included in JTA for information purposes to help PMs determine those standards likely to change in the near term (within 3 years) and to suggest those standards that should concern PMs when upgrading weapon systems. JTA management councils normally elevate emerging standards to mandated standards when industry implementations of the standards mature. PMs may implement emerging standards but not in place of mandated standards.

Overall, 78 percent of the responding PMs indicated that the JTA guidance was clear on the differences relating to program office use of standards JTA classified as mandatory and those it classified as emerging. Nine percent, however, stated that the guidance was not clear, and 13 percent stated that the question was not applicable for their program office. PM responses did not vary substantially by DoD Component or acquisition phase.

Clarity of JTA Guidance. PMs were asked to comment on the clarity of the JTA guidance for determining which JTA standards were applicable to their weapon system when building a system specific standard profile. Overall, 62 percent of the respondents indicated that the JTA guidance provided informed users (design engineers with a grasp of the mission, function, and basic plans for development or upgrade of a system) with clear guidance to determine which standards and protocols were applicable to their weapon systems. Thirty-eight percent of respondents stated that the JTA guidance should be modified to provide users with a more efficient means for obtaining a user-specific profile of the JTA standards and to determine which standards and protocols apply to weapon systems. PM responses did not vary substantially by DoD Component or acquisition phase. If PMs and contractors are to be effective and efficient in selecting the JTA standards applicable to their programs, it is essential that the JTA guidance be clear to enable easy identification of the applicable JTA standards.

Acquisition Manager Suggestions and Comments. Acquisition managers offered the following suggestions and comments regarding the ease of identifying applicable JTA standards.

- JTA must provide a sufficient amount of detail describing each standard to enable program offices to determine applicability to their weapon system program. Because program offices must pay for access to many standards identified in JTA, the respondent stated that it was not cost-effective for PMs to pay for documentation for a candidate standard, only to find out that that the standard did not apply (one respondent).

- Standard descriptions must include lower level profiles. Many of the standards have lower level options that program offices must select to actually achieve weapons system interoperability requirements (one respondent).

- Improve accessibility of standards. Many of the mandated standards are difficult to obtain in a timely or cost-effective manner (two respondents).

- The list of standards in the JTA is large and growing. If the JTA continues to grow and contain every variant, it will be of little value in the future (one respondent).

Including JTA Requirements in Acquisition Planning Documents

PMs were asked whether JTA requirements were included in their mission needs statements, operational requirements documents, or other acquisition planning documents, such as the technical requirements document, the functional requirements document, and the command, control, communication, computers, and intelligence support plan. Appendix I provides an overview of the purpose of the acquisition planning documents and describes the relationship to JTA implementation.

In Acquisition Planning Documents. Overall, 59 percent of the responding PMs stated that JTA requirements were included in at least one of the acquisition planning documents (25 percent of the responding PMs included the requirements in two or more documents). The operational requirements document was the document in which DoD Components most commonly inserted JTA requirements. Forty-five percent of responding PMs stated that JTA requirements were inserted in the operational requirements document. Table 1 provides a breakout of the percentages of DoD Components and PMs that included JTA requirements in various combinations of the acquisition planning documents.

Table 1. Percentage of Acquisition Programs That Included JTA Requirements In Acquisition Planning Documents

Acquisition Planning Documents	Percentage of Respondents
Mission Needs Statement Only	0
Operational Requirements Document Only*	22
Mission Needs Statement and Operational Requirements Document*	3
Other Acquisition Planning Documents Only	14
Mission Needs Statement, Operational Requirements Document, and Other Acquisition Planning Documents*	1
Operational Requirements Document and Other Acquisition Planning Documents*	19
Total	**59**

*Forty-five percent of responding PMs indicated that the DoD Components included JTA requirements in the operational requirements document or in the operational requirements document and a combination of other acquisition planning documents.

Not in Acquisition Planning Documents. Forty-one percent of the PMs responded that JTA requirements were not included in any of the above acquisition planning documents. Figures 1 and 2 provide breakouts, by DoD Component and program acquisition phase, respectively, of the percentages of DoD Components and PMs that did not include JTA requirements in any of the acquisition planning documents.

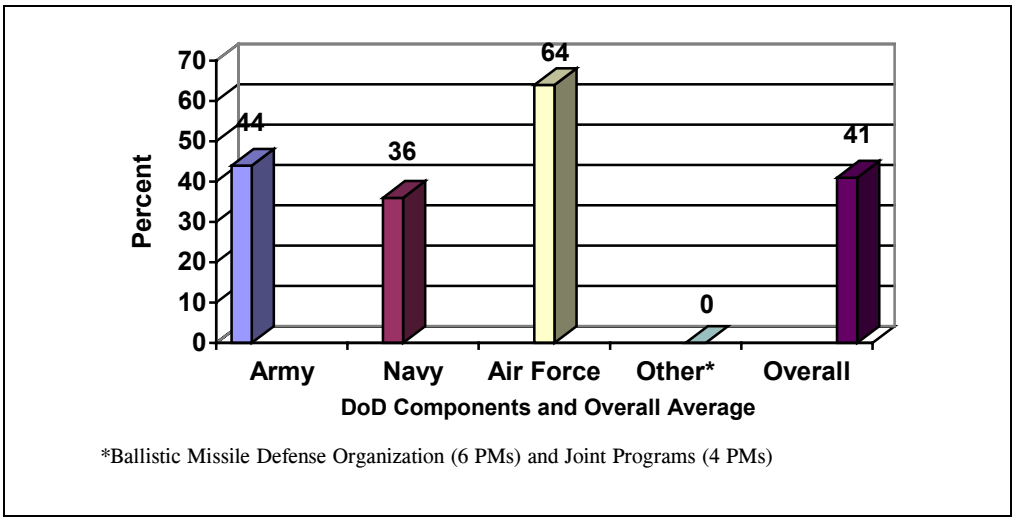


Figure 1. Percentage of Acquisition Programs, By DoD Component, Not Including JTA Requirements in Acquisition Planning Documents

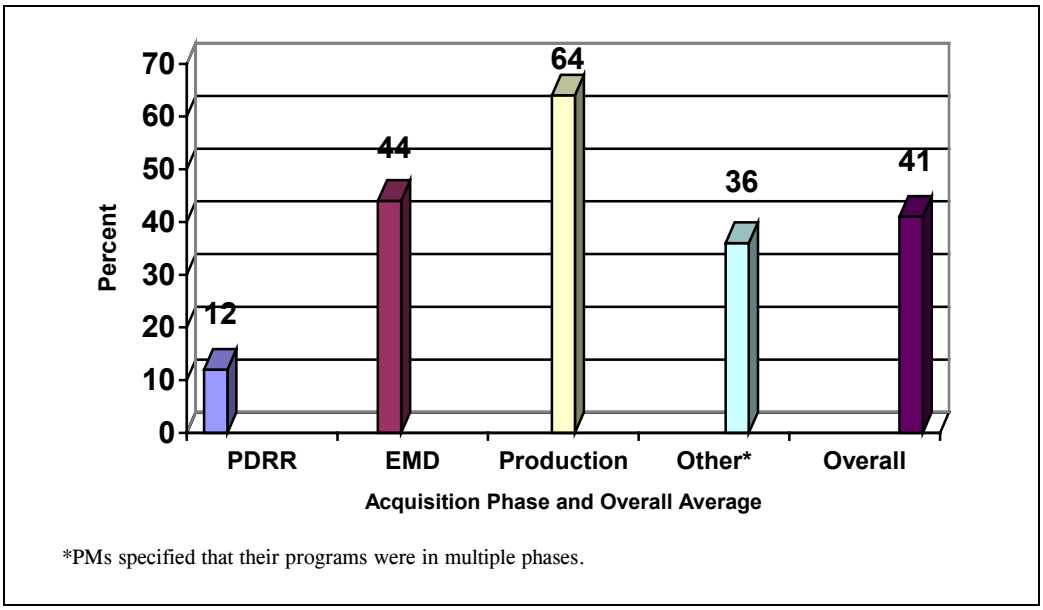


Figure 2. Percentage of Acquisition Programs, By Acquisition Phase, Not Including JTA Requirements in Acquisition Planning Documents

As shown in Figure 1, the percentage of Air Force PMs not including JTA requirements in at least one acquisition planning document was substantially greater than the overall average (64 percent compared to 41 percent). All of the PMs in the other DoD Component category, which contains only 10 programs, included JTA requirements in at least one acquisition planning document.

As shown in Figure 2, DoD Components and PMs that did not include JTA requirements in at least one acquisition planning document had programs in the PDRR, EMD, and production program acquisition phases. The 12 percent of acquisition programs in the PDRR phase that did not include JTA requirements in acquisition planning documents was substantially lower than the overall average of 41 percent, while 64 percent of programs in the production phase, which did not include JTA requirements, was substantially higher than the overall average. Because PDDR is the first acquisition phase of any acquisition program, those results show that DoD Components and PMs for the newer acquisition programs tended to incorporate JTA requirements into their planning documents at a higher rate than programs in EMD and production phases.

Survey responses were reviewed from 13 PMs who provided explanations for programs that did not have language concerning the required use of JTA or JTA-compliant Component technical architecture standards requirements in the mission needs statement and the operational requirements document. The most common explanation, which 6 of the 13 PMs cited, was that the development contract (and therefore the mission needs statement and the operational requirements document) predated the JTA. However, that reason was not valid because the Policy Offices memorandums, "Implementation of the DoD Technical Architecture," August 22, 1996 (Version 1.0) and "DoD Joint Technical Architecture (JTA) Version 2.0," November 30, 1998, state that implementation of JTA Versions 1.0 and 2.0 is effective immediately for all emerging programs or for modification to existing programs unless the CAE granted a waiver based on cost, schedule, or performance impacts of using the JTA standards.

PMs gave further explanations why the DoD Components did not insert JTA standards requirements in the mission needs statement and the operational requirements document. Those reasons included no weapon system requirement for interoperability (three PMs), documents not yet completed (one PM), and other reasons (three PMs). Other reasons included: the system development contract was not based on Federal Acquisition Regulation requirements, the contract complied with system design requirements of non-DoD agencies, and the contract already contained a requirement for the contractor to use the JTA standards.

Timing for Including JTA Standards in Acquisition Planning Documents. DoD Components and PMs should include the JTA standards in acquisition planning documents supporting the development of a weapon system as early as possible in the acquisition process, starting when the weapon system is in the PDDR acquisition phase. During this acquisition phase, the PMs refine assessments of alternative concepts through efforts to reduce program risks associated with weapon system development, manufacturing, and support.

PMs can also implement the JTA standards after weapon systems have already entered EMD and production phases. During the EMD phase, PMs translate the most promising design approach into a stable, interoperable, producible, supportable, and cost-effective design and can fully implement JTA standards applicable to the weapon system. It is also not too late to introduce the implementation of the JTA standards into a weapon system during the production phase. During production, PMs try to achieve an operational capability that satisfies mission needs and resolves and verifies fixes encountered during testing before the programs enter production. PMs also assess the potential for modifications to the system design and may plan for future improvements to the weapon system. PMs can introduce the implementation of the JTA standards into the weapon system design as modifications are made to the fielded weapon system.

Including the JTA Requirements in Contract-Related Documents

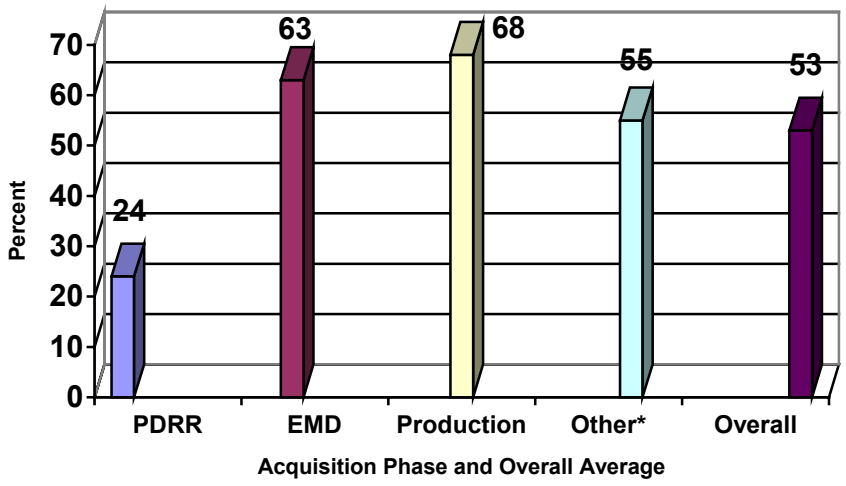
PMs were asked a question regarding the inclusion of JTA requirements in contract-related documents. Specifically, PMs were queried about the inclusion of JTA requirements in the request for proposal, the most recent prime contract, and modifications to the prime contract. Almost half of the responding PMs indicated that they inserted JTA requirements in their contract-related documents. Appendix I provides an overview of the purpose of the contract-related documents and describes how the documents relate to the implementation of JTA.

In Contract-Related Documents. Overall, 47 percent of the responding PMs indicated that JTA requirements were included in at least one of the three contract-related documents (with 19 percent that included JTA requirements in two or more documents). Table 2 provides a breakout of the percentages of PMs that included JTA requirements in combinations of the contract-related documents.

Table 2. Percentage of Program Managers that Included JTA Requirements in Contract-Related Documents

Contract-Related Document	Percentage of Respondents
Request For Proposal Only	12
Prime Contract Only	3
Contract Modification Only	13
Request For Proposal and Prime Contract	10
Request For Proposal and Contract Modification	1
Request For Proposal, Prime Contract, and Contract Modification	8
Total	**47**

Not In Contract-Related Documents. Fifty-three percent of responding PMs stated that JTA requirements were not included in any of the contract-related documents. The percentage of PMs in the Army, Navy, and Air Force that did not include JTA requirements in their most recent contract-related documents did not vary substantially from the 53 percent overall average for the DoD Components. Figure 3 shows a breakout by acquisition phase for the PMs who did not include JTA requirements in any of the three contract-related documents.



*PMs specified that their programs were in multiple phases.

Figure 3. Percentage of Program Managers, By Acquisition Phase, That Did Not Include JTA Requirements in Contract-Related Documents

As shown in Figure 3, PMs with programs in the PDRR phase that did not include JTA requirements in the contract-related documents were substantially lower than the 53 percent overall average. As with the acquisition planning documents discussed earlier, the lower percentages in the PDRR phase show that PMs for the newer acquisition programs tended to incorporate JTA requirements into the acquisition planning documents earlier than the PMs for programs in EMD and production phases. Implementation of the JTA standards in the development of a weapon system should occur as early as possible in the acquisition process. The optimum time is during the PDRR acquisition phase because the PM is refining assessments of alternative concepts through efforts to reduce program risks associated with weapon system development, technology, manufacturing, and support.

Survey responses were reviewed from the 10 PMs who provided explanations for not including language on the required use of JTA standards in requests for proposals and contract statements of work. A common reason, which 3 of 10 PMs cited, was that the development contract predated the JTA. The timing of the introduction of the JTA does not exempt PMs from the requirement to use JTA standards when upgrading systems. Another common reason, which three

other PMs cited, was that their system was a subsection of a larger program and that weapon system interoperability was the responsibility of the PM for the larger program. The other four PMs cited different reasons for contractors not using JTA standards. Those reasons included: JTA exemption was granted in the Component JTA implementation plan, operational requirements documents did not require use of the JTA standards, weapon systems architecture was not yet defined, and contract was not based on Federal Acquisition Regulation requirements.

CAE and PEO Reviews for JTA Compliance

CAEs and PEOs were asked if reviews were performed to determine whether their assigned programs complied with the DoD Regulation 5000.2-R requirement for PMs to use the JTA standards in the design of weapon systems. CAEs and PEOs were also asked questions concerning:

- the timing of JTA reviews,
- what acquisition planning documents were reviewed for JTA references,
- whether JTA reviews led to directions to PMs to revise acquisition strategies, and
- whether outside assistance was used to review assigned weapon system programs for JTA compliance.

PMs were also asked questions to determine whether their staffs or other DoD organizations assessed or planned to assess whether their program was compliant with JTA.

CAEs and PEOs. Almost all responding CAEs and PEOs indicated that their offices, at various times, performed at least some review of their assigned weapon system programs to determine whether the programs complied with requirements for JTA standards application. The operational requirements document and the test and evaluation master plan were most commonly reviewed for JTA references. Based on their reviews of PM compliance with JTA requirements, about one-third of the respondents provided PMs with direction for revision of program acquisition strategies to implement the JTA standards. Additionally, the majority of CAEs and PEOs that directed changes to program acquisition strategies also stated that help was received from offices or groups outside their office to review the use of the JTA standards in weapon system acquisition planning documents.

Timing of JTA Reviews. CAEs and PEOs were asked whether their offices reviewed the use of JTA as part of program acquisition milestone reviews, periodic progress reviews between program milestones, or other reviews. Overall, 94 percent of the responding CAEs and PEOs indicated that they reviewed the implementation of JTA requirements at one or more of those reviews. Table 3 shows the percentages of CAE and PEO respondents that

performed program reviews or a combination of reviews to determine the implementation of JTA requirements by PMs in program acquisition planning documentation.

Table 3. Percentage of CAEs and PEOs that Reviewed the Use of JTA Standards by PMs as Part of Program Reviews

Type of Program Review	Percentage of Respondents
Program Milestone Reviews Only	75
Program Progress Reviews Between Milestone Reviews Only	75
Milestone Reviews and Progress Reviews	44
Other Reviews*	13
Milestone Reviews, Progress Reviews And Other Reviews	38
At Least One of the Above Reviews	94

*Other Reviews consisted of business reviews, technical meetings, reviews of operational requirements documents and requests for proposal, integrated product team reviews, and test readiness reviews.

As illustrated in Table 3, the most common timing for JTA review was at program milestone reviews and at periodic progress reviews between milestone decision points. Seventy-five percent of the respondents indicated that reviews were performed at those times. CAE and PEO review of the JTA standards use between milestone reviews allowed PMs to make timely adjustments to program acquisition strategies as needed. CAE and PEO milestone reviews most frequently involved followup on issues noted in periodic progress reviews between milestone reviews.

Acquisition Planning Documents Reviewed. CAEs and PEOs were asked whether they reviewed program mission needs statements, operational requirements documents, or other acquisition planning documents to determine whether those documents contained references to DoD JTA or the DoD Component technical architecture. Ninety-four percent of the responding CAEs and PEOs indicated that at least one of those documents was reviewed for references to JTA standards. Table 4 shows the percentages of respondents that reviewed each document.

Table 4. Percentage of CAEs and PEOs that Reviewed Acquisition Planning Documents for JTA References

Acquisition Planning Document	Percentage of Respondents
Mission Needs Statement Only	44
Operational Requirements Document Only	94
Misssion Needs Statement And Operational Requirements Document	44
Other Acquisition Planning Documents	44
None	6

As shown in Table 4, 94 percent of the CAEs and PEOs stated that the operational requirements document requirements were reviewed for references to JTA.

Effect of JTA Reviews. In a follow-on question, CAEs and PEOs that indicated they reviewed the mission needs statement and the operational requirements document were asked whether the review led them to direct assigned PMs to revise acquisition strategies to better apply the JTA standards. Thirty-one percent of the respondents stated that the reviews led them to direct revisions of PM acquisition strategies.

Assistance in Reviewing Assigned Programs. CAEs and PEOs were also asked whether any office or group outside their offices assisted them in reviewing the use of JTA by assigned PMs. Overall, 60 percent of the respondents (all Army) stated that outside offices or groups assisted in reviewing the use of JTA by assigned PMs. Outside offices or groups can be helpful in reviewing the use of JTA standards by PMs because they can provide an independent perspective and specialized experience that may not be available within CAE and PEO offices.

Program Managers. PMs were almost equally divided between those responding that their programs were subject to program assessments for JTA compliance (49 percent) and those programs that were not subject to program assessments for JTA compliance (51 percent). By acquisition program phases, responses of PMs by DoD Components were almost equal.

PM responses indicated that CAE and PEO compliance assessments of PM implementation of the JTA standards had a moderate influence on the inclusion of JTA requirements in the mission needs statement, the operational requirements document, and other acquisition planning documents. For those programs where the PM indicated that the program was subject to a program assessment for JTA compliance, 59 percent of the PMs indicated they included JTA requirements in one or more of the acquisition planning documents. For

programs not subject to a JTA program assessment, only 41 percent of the PMs stated that they included JTA requirements in one or more of the acquisition planning documents.

The PM responses indicated that CAE and PEO compliance assessments of the implementation of the JTA standards had no influence on inclusion of JTA requirements by PMs in contractual documents, including the request for proposal, prime contract, and contract modifications. In those programs where PMs indicated that their program was subject to an assessment, 46 percent of the PMs indicated that they had included JTA requirements in one or more of the contractual documents versus 54 percent of the PMs when a JTA program assessment was not performed or planned. Based on the PM responses, CAEs and PEOs need to emphasize and enforce the requirement that PMs include JTA requirements in contract-related documents when performing JTA compliance reviews. The contract provisions guide the contractor in designing the weapon system. Therefore, weapon system contracts must contain provisions for implementing the JTA standards to help DoD achieve systems interoperability requirements between systems.

Effects of Implementing the JTA

Two questions were asked of CAEs, PEOs, and PMs to determine whether implementing JTA:

- was a benefit or a hindrance in executing programs and
- was a viable means for promoting:
  - the necessary level of interoperability between systems and
  - the use of an open systems approach in weapon system design.

Program Execution. CAEs and PEOs were more positive than the PMs concerning the impact of JTA on program execution.

CAEs and PEOs. Overall, 62 percent of the responding CAEs and PEOs indicated that implementing JTA was a benefit in executing programs and 38 percent indicated that implementing the JTA had no impact or hindered program execution. CAE and PEO responses regarding the impact of implementing JTA in executing programs did not vary substantially by DoD Component.

CAEs and PEOs that responded that implementation of JTA benefited program execution provided the following reasons for the positive responses.

- Use of the JTA standards provided system developers with increased confidence in system interoperability characteristics resulting in avoidance of costs for unnecessary rework, retest, and maintenance (two respondents).

- JTA standards provided system developers with needed guidance for assuring interoperability of their system with other systems, including Joint and Allied systems (two respondents).

- JTA standards provided an excellent source of information on standards for developing systems (one respondent).

CAEs and PEOs who responded that implementation of JTA hindered program execution provided the following reasons for negative responses.

- JTA-specified standards that were outside the scope of the JTA charter and the preparation of waiver requests for reasonable deviations from the JTA standards were time consuming and not funded (one respondent).

- Implementation of JTA standards required PMs to take more steps and effort with little or no return on investment (one respondent).

- JTA management councils did not adapt and clarify new JTA standards in a timely manner, leaving programs at risk if the latest contractor-off-the-shelf tools were used (one respondent).

- JTA-mandated aviation standards were minimal or limited to command, control, communications. computers, and intelligence. If DoD expanded the use of JTA standards beyond interoperability requirements, JTA could become a hindrance and a program cost driver (one respondent).

Program Managers. Unlike CAEs and PEOs, a minority of PM respondents viewed the use of JTA standards positively. Overall, 22 percent of responding PMs indicated that implementation of JTA standards was a benefit to program execution. Seventy-eight percent of PMs indicated that implementation of JTA standards had no impact or hindered program execution. As indicated in Figure 4, PM responses varied substantially by program acquisition phase. Forty-four percent of PMs for programs in the PDRR phase responded that implementation of the JTA standards benefited program execution. That was twice the overall average of 22 percent. Because PDRR is the first acquisition phase of any acquisition program, those results show that the DoD Components and PMs for the newer acquisition programs are more likely to view implementation of the JTA as a benefit to program execution.

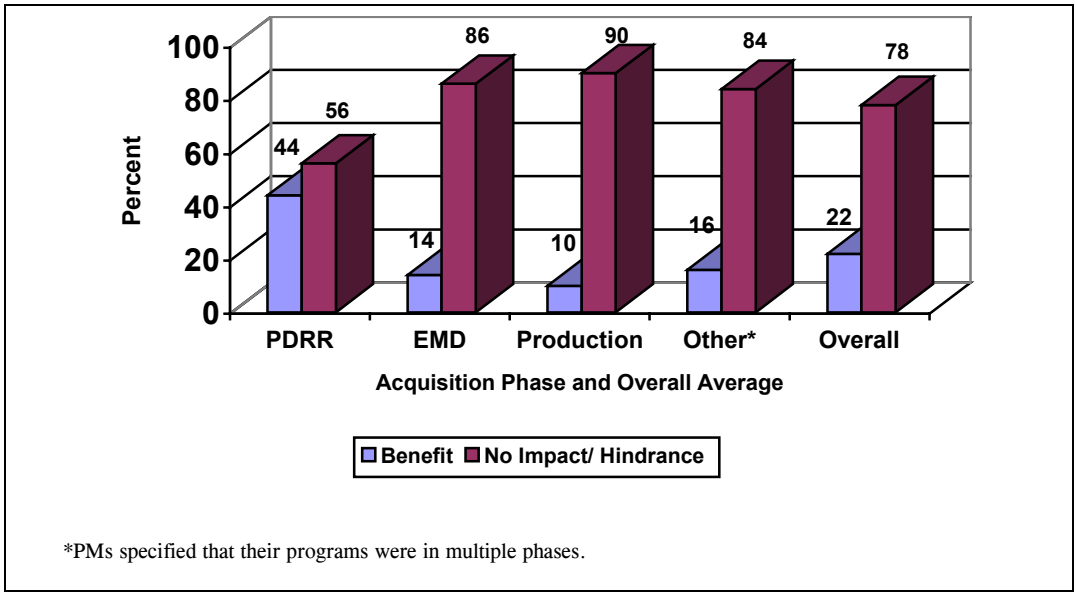


Figure 4. Percentage of PM Respondents, by Acquisition Phase, that Indicated Implementation of the JTA Standards Was a Benefit or Had No Impact or was a Hindrance to Program Execution

PM responses did not vary substantially by DoD Component.

PMs who responded that implementation of the JTA standards benefited program execution provided the following reasons for positive responses.

- JTA standards act as a guide to keep PMs focused during the weapon systems design process by enabling PMs to measure their system design against current and emerging standards (one respondent).

- JTA standards serve as a reference tool for use by PMs to monitor the evolution of the weapon systems architecture and to prepare performance based specifications, particularly interoperability specifications (one respondent).

PMs who responded that implementation of the JTA standards hindered program execution provided the following reasons for negative responses.

- Implementation of the JTA standards caused negative cost, schedule or performance impacts to their acquisition programs (four respondents).

- The applicability of the JTA standards was hard to determine (one respondent).

- Preparation of waiver requests for deviations from the JTA standards was time-consuming and unfunded (one respondent).

- Implementation of the JTA standards did not guarantee operational interoperability between systems (one respondent).

- The application of mandated JTA standards, when beginning weapon systems design and assessing JTA compliance as guidance and standards emerged, caused confusion for design engineers (one respondent).

Promoting Interoperability Between Systems and Open Systems. The majority of CAEs, PEOs, and PMs stated that implementation of the JTA standards was a viable means for promoting the necessary level of interoperability between systems and promoting the use of an open system approach in the design of weapon systems.

CAEs and PEOs. Overall, 64 percent of CAEs and PEOs indicated that implementation of the JTA standards was a viable means for promoting the necessary level of interoperability between systems and promoting the use of an open systems approach. Other responses included:

- 18 percent indicated that implementing the JTA standards was a viable means only for promoting the necessary level of interoperability between systems, and

- 18 percent indicated that implementation of the JTA standards was a viable means only for promoting the use of an open systems approach.

As indicated in Figure 5, CAE and PEO responses varied substantially by DoD Component. Although all of the responding Air Force CAEs and PEOs indicated that the JTA standards were a viable means for promoting the necessary level of interoperability between systems and promoting the use of an open systems approach, only 71 percent of the Army and 43 percent of the Navy CAEs and PEOs responded similarly. The CAEs and PEOs that indicated the JTA standards were not a viable means for promoting interoperability between systems or for promoting PM use of an open system approach did not provide explanations for their assessment.

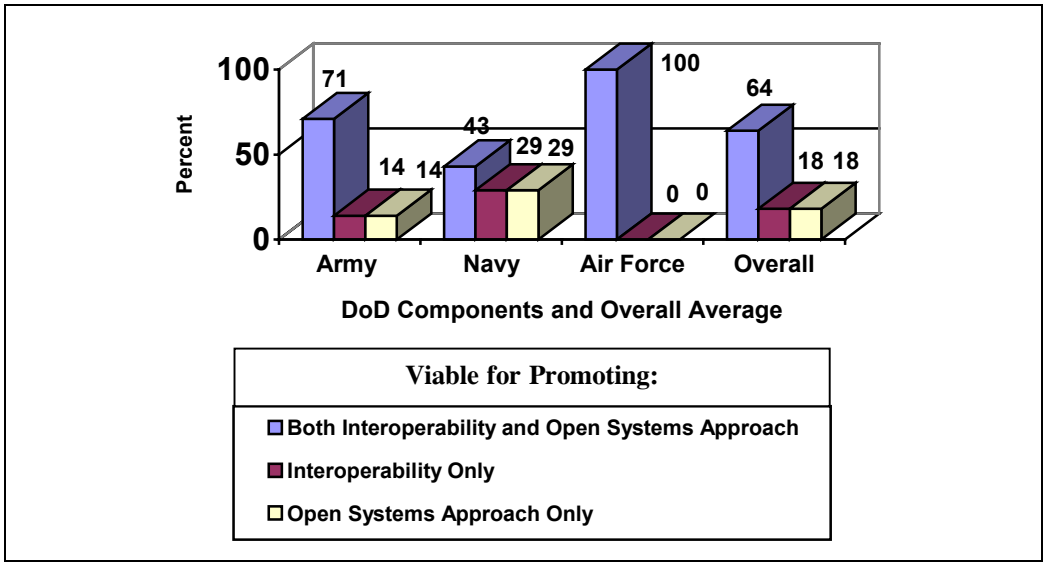


Figure 5. Percentage of CAE and PEO Respondents, by DoD Component, Who Believed that the JTA Standards Were a Viable Means for Promoting Interoperability Between Systems and an Open Systems Design Approach

Program Managers. Overall, 59 percent of PMs who responded indicated that implementation of the JTA standards was a viable means for promoting the necessary level of interoperability between systems and promoting the use of an open systems approach. Other responses included:

- 17 percent indicated that implementation of the JTA standards was a viable means only for promoting the necessary level of interoperability between systems,
- 9 percent indicated that implementation of the JTA standards was a viable means only for promoting the use of an open systems approach, and
- 15 percent indicted that implementation of the JTA standards was not viable for promoting interoperability between systems or the open systems approach.

As shown in Figure 6, PM responses varied substantially by DoD Component. As with CAEs and PEOs, a higher portion of Air Force respondents indicated that implementation of the JTA standards was a viable means for promoting the necessary level of interoperability between systems and promoting PM use of an open systems approach.

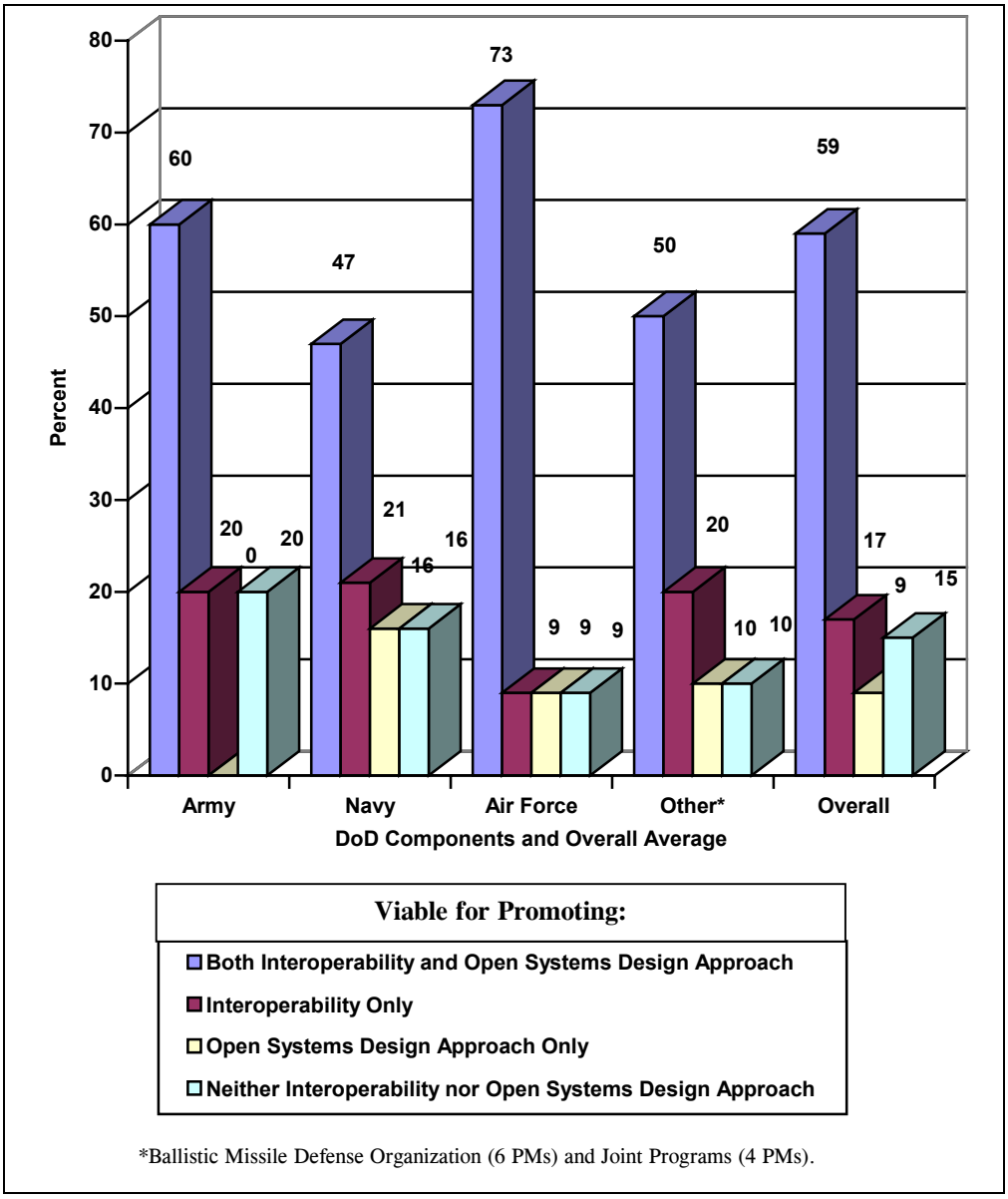


Figure 6. Percentage of Program Manager Respondents, by DoD Component, Who Believed that Implementing JTA Standards Was a Viable Means for Promoting Interoperability Between Systems and an Open Systems Design Approach

As indicated in Table 5, PM responses varied substantially by acquisition phase. A substantially higher percentage of PMs in the PDRR and EMD acquisition phases indicated that implementation of the JTA standards was a viable means for promoting interoperability between systems and promoting PM use of an open system design approach.

Table 5. Percentage of Program Manager Respondents, by Acquisition Phase, Who Believed that Implementing the JTA Standards Was a Viable Means for Promoting Interoperability Between Systems and Open Systems Design

DoD Acquisition Phases and PM Response on Promoting Interoperability and an Open Systems Design Approach	Percentage of Respondents
PDRR	
Interoperability and Open Systems Design Approach	65
Interoperability Only	6
Open Systems Design Approach Only	12
Neither Interoperability nor Open Systems Design Approach	18
EMD	
Interoperability and Open Systems Design Approach	77
Interoperability Only	14
Open Systems Design Approach Only	5
Neither Interoperability nor Open Systems Design Approach	5
Production	
Interoperability and Open Systems Design Approach	39
Interoperability Only	22
Open Systems Design Approach Only	11
Neither Interoperability nor Open Systems Design Approach	28
Other*	
Interoperability and Open Systems Design Approach	50
Interoperability Only	38
Open Systems Design Approach Only	0
Neither Interoperability or Open Systems Design Approach	13

*PMs specified that their programs were in multiple acquisition phases.

The PMs who responded that implementation of the JTA standards was not a viable means for promoting interoperability between systems provided the following reasons for negative responses:

- the implementation of JTA requires a PM to adhere to the JTA standards without levying the requirement on other PMs, which can impact interoperability between systems (two respondents),
- the JTA standards are too broad to drive interoperability requirements between systems, as interoperability requires agreement at a much lower level to include options of the standards, data schemes, and application level protocols that the JTA standards cannot address (three respondents),

- the large number of JTA standards often conflicted with other interoperability performance requirements so that implementing the JTA standards did not guarantee interoperability between systems (two respondents), and

- the JTA standards provided the weapon design staff a listing of standards as an enabler for interoperability between systems, but the JTA standards were not sufficient, by themselves, to ensure interoperability between systems (two respondents).

The PMs who responded that implementation of the JTA standards was not a viable means for promoting the use of an open systems design approach provided the following reasons for negative responses.

- open systems standards, because of world-wide accessibility, could make weapon systems too vulnerable to cyber attacks and denials-of-service. Also, most commercial products tend to have a very short product life cycle and, consequently, may be more costly to upgrade or replace than custom-made military products (one respondent);

- the JTA standards are a good means of providing common definition and expectations across programs and services, but any joint direction that requires an open systems design approach for weapons systems is not appropriate (one respondent), and

- promoting the use of an open systems design approach is not viable for ground vehicular equipment because PMs specify contractor use of the best available command, control, communications, computers, and intelligence for those systems early in the acquisition process (one respondent).

Overall Acquisition Manager Assessment of the Benefits of Implementation of the JTA Standards. Although the majority of CAEs, PEOs, and PMs that responded to the survey viewed JTA as beneficial in the promotion of program execution, system interoperability, and an open systems design approach, the responses and comments showed that the JTA Policy Offices and JTA management councils need to place additional emphasis on clarifying JTA guidance, streamlining JTA implementation, implementing other interoperability initiatives, and consistently levying JTA requirements.

Clarifying JTA Guidance. The Policy Offices, in the revision of the JTA user guide, need to provide PMs more user-friendly guidance for using the JTA. The draft version of the "DoD Joint Technical Architecture User Guide," April 11, 2000, Office of the Assistant Secretary of Defense (Command, Control, Communication, and Computers), provides general information and text for specifying use of the JTA standards in requests for proposals and contract statements of work. The Office of the Assistant Secretary also plans to include a general template in the user guide for incorporating the JTA standards

use into requirements documents, including the operational requirements document and the Command, Control, Communication, Computers, and Intelligence (C^4I) Support Plans.

Streamlining JTA Implementation. Some acquisition managers indicated that implementing the JTA standards had an adverse effect on the cost, schedule, and performance elements of their programs. JTA Policy Offices must give high priority to ongoing efforts to make it easier for PMs to identify the JTA standards applicable to systems. In this regard, the Office of the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) was preparing a JTA user guide and a Virtual JTA, which is a more automated version of JTA, to provide PMs more user-friendly guidance. As part of the Virtual JTA, the Office of the Assistant Secretary plans to include a capability designated as a compliance management planner. The compliance management planner is an automated capability that will help DoD Components and PMs to more easily identify and select JTA standards applicable to systems. Additionally, the Policy Offices need to issue guidance for PMs to determine cost, schedule, and performance impacts for implementing specific JTA standards, and determination of warranted waiver requests, as agreed in response to a recommendation in Inspector General, DoD, Report No. D-2001-121, "Use of the Joint Technical Architecture in the Acquisition Process," May 14, 2001.

Implementing Other Interoperability Initiatives. Survey respondents are correct in stating that implementation of the JTA standards will not, by itself, guarantee interoperability among DoD systems. JTA is complementary to other DoD programs and initiatives aimed at the development and acquisition of effective and interoperable information systems. Those related programs and initiatives include the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance Architecture Framework, developed through the DoD Architecture Coordination Council; the Requirements Generation System; and the initiative for interoperability and supportability of National Security Systems and Information Technology Systems, administered through the Joint Chiefs of Staff. Also, to maximize interoperability, DoD must fully implement two additional architectures--the Operational Architecture, which identifies warfighter relationships and information needs, and the Systems Architecture, which relates characteristics and capabilities of individual systems to operational requirements.

Levying Interoperability Requirements. The Policy Offices need to consistently levy JTA requirements on all acquisition programs meeting JTA criteria established in DoD Regulation 5000.2-R. Additionally, the Policy Offices need to continue to emphasize identifying families of systems so that PMs and warfighters can agree on lower level applications of options within the JTA standards, data schemes, and protocols that build interoperability between systems.

Appendix A. Audit Process

Scope

We reviewed documentation dated from April through October 2000. Documentation consisted of responses from CAEs, PEOs, and PMs to our survey questionnaires on their experience implementing the JTA standards as part of the DoD acquisition process. We did not include the management control program in the objectives in this review because we addressed the management control program as part of Inspector General, DoD, Report No. D-2001-121, "Use of the DoD Joint Technical Architecture in the Acquisition Process," May 14, 2001.

DoD-Wide Corporate-Level Government Performance and Results Act Coverage. In response to the Government Performance and Results Act, the Secretary of Defense annually establishes DoD-wide corporate level goals, subordinate performance goals, and performance measures. This report pertains to achievement of the following goal and subordinate performance goal.

- **FY 2000 DoD Corporate Level Goal 2:** Prepare now for an uncertain future by pursuing a focused modernization effort that maintains U.S. qualitative superiority in key warfighting capabilities. Transform the force by exploiting the Revolution in Military Affairs, and reengineer the Department to achieve a 21st century infrastructure. **(00-DoD-2)**

- **FY2000 Subordinate Performance Goal 2.4:** Meet combat forces' needs smarter and faster, with products and services that work better and cost less, by improving the efficiency of DoD acquisition processes. **(00 DoD-2.4)**

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in the Department of Defense. This report provides coverage of the DoD weapons system acquisition high-risk area.

Methodology

To evaluate DoD progress in implementing the standards contained in the JTA in support of achieving systems interoperability between systems, we developed two survey questionnaires. We distributed one version to CAEs and PEOs and the other version to PMs.

CAE and PEO Survey Questionnaire. We sent the CAE and PEO survey questionnaire, including 14 questions, to 23 CAEs and PEOs. We identified the 23 CAEs and PEOs from information on Internet Web Sites for DoD Components and from information provided by audit liaison staffs at DoD Components. Appendix E lists the CAEs and PEOs who participated in the JTA survey.

PM Survey Questionnaire. We sent the PM survey questionnaire, including 24 questions, to PMs for 86 major Defense acquisition programs. We identified the 86 major Defense acquisition programs from two memorandums that the USD (AT&L) issued to the Secretaries of the Military Departments:

- "Fiscal Year 2000 Major Defense Acquisition Program (MDAP) Lists," November 3, 1999, and
- "Updates to the Fiscal Year 2000 Major Defense Acquisition Program (MDAP) Lists," February 22, 2000.

Appendix F lists the major Defense acquisition programs whose acquisition PMs participated in the JTA survey.

To maximize survey participation and to encourage candid responses to survey questions, we promised the respondents to each survey questionnaire that we would keep their individual responses confidential. Additionally, the audit team made follow-up calls to audit liaisons to ensure that CAEs, PEOs, and PMs received the survey questionnaires and were aware of our deadline for submitting responses.

Use of Computer-Processed Data. We did not rely on computer-processed data to perform this audit.

Use of Technical Assistance. Technical experts from the Operations Research Branch, Quantitative Methods Division of the Audit Followup and Technical Support Directorate, Inspector General, DoD, assisted in the audit. The experts assisted in developing the questions included in the CAE and PEO and the PM survey questionnaires.

Audit Type, Dates, and Standards. We conducted this program audit from January through June 2001, in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did our work in accordance with generally accepted Government auditing standards except that we were unable to obtain an opinion on our system of quality control. The most recent external quality control review was withdrawn on March 15, 2001, and we will undergo a new review.

Contacts During the Audit. We visited or contacted individuals and organizations within the DoD. Further details are available on request.

Prior Coverage

During the last 5 years, the Inspector General, DoD, issued two reports relating to use of the JTA in the acquisition process.

Inspector General, DoD, Report No. D-2001-121, "Use of the DoD Joint Technical Architecture in the Acquisition Process," May 14, 2001

Inspector General, DoD, Report No. 98-023, "Implementation of the DoD Joint Technical Architecture," November 18, 1997

Appendix B. Definitions of Terms Relating to the Joint Technical Architecture

The following definitions are germane to a general understanding of implementing the JTA.

Architecture. The architecture is the organizational structure of a system or component and the relationships, principles, and guidelines governing the system design and evolution over time.

Closed Interfaces. Closed interfaces are privately controlled system and subsystem boundary descriptions for interfaces that are not disclosed to the public or that are unique to a single supplier.

Commercial Item. A commercial item is any item other than real property that is of a type customarily used for nongovernmental purposes and that has been sold to the general public or offered for sale to the general public.

Information Technology Systems. Information technology systems are any equipment or interconnected system or subsystem of equipment that are used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. Information technology includes computers, ancillary equipment, software, firmware, and similar procedures, services, and related resources.

Interface Standard. An interface standard specifies the physical or functional interface characteristics of systems, subsystems, equipment, assemblies, components, items or parts to permit interchangeability, interconnection, interoperability, compatibility, or communications.

Interoperability. Interoperability is the ability of two or more systems or components to exchange data and use information.

Joint Technical Architecture. The JTA defines the DoD minimum set of rules governing the arrangement, interaction, and interdependence of the parts or elements, whose purpose is to ensure that systems conform to a specific set of requirements. It identifies system services, interfaces, standards, and relationships.

Legacy Systems. Legacy systems are systems currently performing a mission-related function. These systems may be candidates for phase-out, upgrade, or replacement.

Level of Openness. The level of openness is the system, subsystem, or component level at which the interfaces conform to open standards. The contractor or supplier may control design, interfaces, repair, and

implementation below the level of openness. The level of openness will affect the overall performance, life-cycle costs, long-term supportability, acquisition cycle time, interoperability, interoperability, ease of technology insertion, and the extent of organic repair of a system.

Milestone Decision Authority. The milestone decision authority is the individual that the Under Secretary of Defense for Acquisition, Technology, and Logistics [or the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) for automated information programs] has designated to approve entry of an acquisition program into the next phase of the acquisition process.

National Security Systems. National security systems are telecommunications and information systems that the DoD operates, the functions, operation, or use of which involves intelligence activities, command and control of military forces, equipment that are an integral part of a weapon system, cryptologic activities related to national security, and are critical to the direct fulfillment of military or intelligence missions.

Open Specifications. Open specifications are public specifications maintained by an open, public consensus process to accommodate new technologies over time and consistent with international standards.

Open Standards. Open standards are widely accepted and supported standards set by recognized standards organizations or the commercial marketplace. Open standards support interoperability, portability, and scalability and are equally available to the general public at no cost or with a moderate license fee.

Open System. An open system is a system that implements sufficient open standards for interfaces, services, and supporting formats to enable properly engineered components to be used across a wide range of systems with minimal changes, to interoperate with other components on local and remote systems, and to interact with users in a style that facilitates portability. An open system is characterized by the following:

- well defined, widely used, preferably nonproprietary interfaces and protocols;
- uses of standards which are developed and adopted by recognized standards bodies or the commercial marketplace;
- defines all aspects of system interfaces to facilitate new or additional systems capabilities for a wide range of applications; and
- explicitly provides for expanding or upgrading through the incorporation of additional or higher performance elements with minimal impact on the system.

Open Systems Approach. An open systems approach is an integrated business and technical strategy to choose commercially supported specifications and

standards for selected system interfaces (external, internal, functional, and physical), products, practices, and tools, and to build systems based on modular hardware and software design. Program selection of commercial specifications and standards is based on:

- standards that industry standards bodies have adapted or industry de facto standards (those successful in the marketplace);
- market research that evaluates the short- and long-term availability of products;
- a disciplined systems engineering process that examines tradeoffs of performance;
- supportability and upgrade potential within a defined cost constraint; and
- allowance for continued access to technological innovation supported by many customers and a broad industrial base.

Open Systems Architecture. An open systems architecture is a system architecture produced by an open systems approach and that uses open systems specifications and standards to an appropriate level.

Open Systems Strategy. An open systems strategy focuses on fielding a superior warfighting capability more quickly and more affordably by using multiple suppliers and commercially supported practices, products, specifications, and standards, which are selected based on performance, cost, industry acceptance, long-term availability and supportability, and upgrade potential.

Operational Architecture. An operational architecture is a description of the tasks and activities, operational elements, and information flows required to accomplish or support a military operation.

Proprietary Specifications. Proprietary specifications are exclusively owned by a private individual or corporation under a trademark or patent, the use of which would require a license.

Specification. A specification is a document that prescribes, in a complete, precise and verifiable manner, the requirements, design, behavior, or characteristics of a system or system component.

Standard. A standard is a document that establishes uniform engineering and technical requirements for processes, procedures, practices, and methods. Standards may also establish requirements for selection, application, and design criteria of material.

System Architecture. A system architecture is a description, including graphics, of systems and interconnections providing for or supporting warfighting functions. The system architecture defines the physical connection,

location, and identification of the key nodes, circuits, networks, and warfighting platforms and specifies system and component performance parameters. It is constructed to satisfy operational architecture requirements per standards defined in the JTA. The system architecture shows how multiple systems within a subject area link and interoperate, and may describe the internal construction or operations of particular systems within the architecture.

Weapon System. A weapon system is an item or set of items that can be used directly by the warfighter to carry out combat or combat support missions to include tactical communication systems.

Appendix C. Component Acquisition Executive and Program Executive Officer Survey Questionnaire

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VA 22202

Date

MEMORANDUM FOR COMPONENT ACQUISITION EXECUTIVES AND PROGRAM EXECUTIVE OFFICERS FOR DOD ACQUISITION PROGRAMS

SUBJECT: Survey of DoD Component Acquisition Executive and Program Executive Officer Consideration of the DoD Joint Technical Architecture in Managing Weapon Systems Acquisitions

In conducting our Audit of the Implementation of the Joint Technical Architecture (JTA) in the Acquisition Process, Project No. 9AE-0091.01, the Director for Interoperability in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics has endorsed our distribution of the enclosed survey questionnaire to DoD Component Acquisition Executives (CAEs) and Program Executive Officers (PEOs). The objectives of the survey are to determine if you:

- are aware of the requirement in DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS) Acquisition Programs," for program managers to consider and use the JTA in the weapon system acquisition process;

- have evaluated and enforced program manager use of the JTA where applicable to the design of emerging weapon systems and weapon system upgrades; and

- have ideas for improving JTA application policy and procedures.

The Under Secretary of Defense for Acquisition, Technology, and Logistics and the Assistant Secretary of Defense for Command, Control, Communications and Intelligence established the JTA to improve and facilitate the ability of our systems to support joint and combined operations in an overall investment strategy. DoD Regulation 5000.2-R requires program managers to address interoperability throughout the acquisition life cycle for all acquisition programs. The Regulation further requires program managers for all emerging systems and system upgrades to use JTA standards for information technology. DoD intends the JTA as an interoperability enabler among systems and to communicate to industry DoD's intent to promote open systems products and implementations. To fully accomplish its intended purposes, the JTA must provide program offices with an up-to-date set of information technology standards that are suitable for guiding weapon systems design.

Your thoughtful responses to the survey questionnaire will help us determine the extent to which acquisition decision makers have promoted program manager use of the JTA and have considered program implementation of the JTA when making acquisition decisions. Additionally, your responses will help us in identifying opportunities for improving the applicability and usability of the JTA and will supplement the information we receive from survey questionnaires on program manager use of the JTA that were distributed to program managers for 86 major Defense acquisition programs. We will keep all your responses confidential. We greatly appreciate your time and effort in completing the survey. Please follow the instructions provided at the beginning of the attached questionnaire and forward your responses as an e-mail attachment to hjames@dodig.osd.mil or pmchale@dodig.osd.mil by Date. Based on your responses, we may contact you for further information or clarification. If you have any questions regarding this survey, please contact Harold James at (703) 604-9093 (DSN 664-9093), or Patrick McHale at (703) 604-9095 (DSN 664-9095).

/s/
Harold C. James
Project Manager
Office of the Inspector General, DoD

SURVEY OF COMPONENT ACQUISITION EXECUTIVE AND PROGRAM EXECUTIVE OFFICER INVOLVEMENT WITH THE JTA

Instructions for Completion: Please type in the requested information and mark each of your answers to the survey questions by typing "X" in the brackets ([ ]) in front of the answer you select. As you have multiple programs assigned to your office, answer the questions in the context of the major Defense acquisition programs (ACAT 1) that you manage. Depending on your answer, some questions will require that you type in supplemental information or explanations.

SURVEY CONTROL NO. _____

COMPONENT ACQUISITION EXECUTIVE (CAE) TITLE (if applicable):

NAME:
PHONE:

OR:

PROGRAM EXECUTIVE OFFICER (PEO) TITLE (if applicable):

NAME:
PHONE:

PRIMARY PREPARER OF SURVEY RESPONSES (IF OTHER THAN CAE OR PEO)

NAME:
TITLE:
PHONE:

DOD COMPONENT:

A. [ ] Army
B. [ ] Navy
C. [ ] Air Force
D. [ ] Marine Corps
E. [ ] BMDO
F. [ ] Other (specify)

Names and offices of individual respondents will be kept confidential.

SURVEY OF COMPONENT ACQUISITION EXECUTIVE AND PROGRAM EXECUTIVE OFFICER INVOLVEMENT WITH THE JTA

1. Are you aware of the requirement for acquisition programs to comply with the DoD Joint Technical Architecture (JTA)?

   A. [ ] Yes (state source of awareness)
   B. [ ] No
   C. [ ] Don't know

2. Are you aware of your Component's (Service, DoD Agency, or other) DoD JTA Implementation Plan?

   A. [ ] Yes
   B. [ ] No

3. Has your office issued guidance to assigned programs regarding program use of the JTA?

   A. [ ] Yes (please provide synopsis of the JTA related guidance your office has issued)
   B. [ ] No

4. Is interoperability with other systems (in terms of producing, using, or exchanging information in any form electronically) a requirement in the development of any of the systems that you oversee?

   A. [ ] Yes
   B. [ ] No

5. Indicate whether your office reviews program use of the JTA as part of (check all that apply):

   A. [ ] program acquisition milestone reviews
   B. [ ] periodic progress reviews between program acquisition milestones
   C. [ ] other reviews (please specify)
   D. [ ] do not review for JTA usage

6. Indicate whether your office reviews the following acquisition planning documents for assigned programs to determine if the documents contain references to DoD JTA or Components technical architecture (mark all that apply):

   A. [ ] MNS
   B. [ ] ORD
   C. [ ] TEMP
   D. [ ] Other (specify)
   E. [ ] None (provide explanation)

7. Has your office's review of program use of the JTA in acquisition planning documents led to any direction to program offices concerning revised acquisition strategies to use the JTA?

   A. [ ] Yes (please describe the nature and program impact of these directions)
   B. [ ] No

8. Does any office or group outside your office assist you in reviewing your assigned program office's use of the JTA?

   A. [ ] Yes (Please provide the name of the office or group and their relationship to your office)
   B. [ ] No

9. Have the outside office or group reviews of program use of the JTA in acquisition planning documents led to directions to program offices concerning revised acquisition strategies to implement the JTA?

   A. [ ] Yes (please describe the nature and program impact of these directions)
   B. [ ] No
   C. [ ] N/A

10. Have your assigned acquisition programs submitted any requests for waivers from use of the JTA?

    A. [ ] Yes [Please provide details concerning the programs and number of waivers received and your action (approved and forwarded or disapproved)]
    B. [ ] No

11. Overall, has the JTA been a benefit or a hindrance in the execution of your assigned acquisition programs?

    A. [ ] Benefit
    B. [ ] Hindrance
    C. [ ] No impact

    (If your answer is "A" or "B," please provide explanation)

12. Do you believe that use of the JTA is a viable means for:

    1) promoting the necessary level of interoperability between systems
    2) promoting the use of an open systems approach

    (Please provide an explanation for your selected answer.)

    A. [ ] Both 1 & 2
    B. [ ] Only 1
    C. [ ] Only 2
    D. [ ] Neither 1 nor 2

13. The JTA identifies over 400 standards for use where applicable. Which organization normally selects standards applicable to a specific contract:

    A. [ ] CAE
    B. [ ] PEO
    C. [ ] PMO
    D. [ ] Prime Contractor
    E. [ ] Systems Engineering/Technical Assistance (SE/TA) Contractor
    F. [ ] Other/None (please specify)

14. Based on your experience in managing or reviewing program office use of the JTA, please provide any comments or improvements you would make to OSD or your DoD Component's policies or procedures that would help other CAEs, PEOs, and JTA users more effectively use the JTA to meet the objective of providing interoperable and affordable weapon systems.

Appendix D. Program Manager Survey Questionnaire

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VA 22202

Date

MEMORANDUM FOR PROGRAM MANAGERS OF DOD ACQUISITION PROGRAMS

SUBJECT: Survey of Program Office Experience in using the DoD Joint Technical Architecture in the Systems Engineering for Emerging Systems and System Upgrades

In conducting our Audit of the Implementation of the Joint Technical Architecture (JTA) in the Acquisition Process, Project No. 9AE-0091.01, the Director for Interoperability in the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics has endorsed our distribution of the enclosed survey to program managers for major Defense acquisition programs. The objectives of the survey are to:

- identify problems program offices may be having in implementing the JTA as required by DoD 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems Acquisition Programs" and

- measure the overall effectiveness of JTA implementation and identify opportunities for improving (1) JTA application policy and procedures, (2) the completeness and currency of the JTA's standard inventory, and (3) the placement of standards in the JTA hierarchy.

The Under Secretary of Defense for Acquisition, Technology, and Logistics and the Assistant Secretary of Defense for Command, Control, Communications and Intelligence established the JTA to improve and facilitate the ability of our systems to support joint and combined operations in an overall investment strategy. DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems Acquisition Programs," requires program managers to address interoperability throughout the acquisition life-cycle for all acquisition programs. The Regulation further requires all emerging systems and system upgrades to use JTA standards for information technology. DoD intends the JTA as an interoperability enabler among systems and to communicate to industry DoD's intent to promote open systems products and implementations. To fully accomplish its intended purposes, the JTA must provide program offices with an up-to-date set of information technology standards that are suitable for guiding weapon systems design.

Your thoughtful responses to the survey, with input from your systems engineering staff, will help us to assist the DoD Technical Architecture Steering Group in determining the effectiveness of the JTA as well as in identifying opportunities for improving the applicability and usability of the JTA. We will keep all individual program responses confidential. We greatly appreciate your time and effort in completing the survey. Please follow the instructions provided at the beginning of the Background section of the attached questionnaire and forward your

responses as an E-mail attachment to hjames@dodig.osd.mil or pmchale@dodig.osd.mil by Date. Based on your responses, we may contact you for further information or clarification. If you have any questions regarding this survey, please contact Harold James at (703) 604-9093 (DSN 664-9093), or Patrick McHale at (703) 604-9095 (DSN 664-9095).

/s/
Harold C. James
Project Manager
Office of the Inspector General, DoD

SURVEY OF PROGRAM USE OF JTA

Instructions for Completion: Please type in the requested information and mark each of your answers to the survey questions by typing "X" in the brackets ([ ]) in front of the answer you select. Depending on your answer, some questions will require that you type in supplemental information or explanations.

PROGRAM / OFFICE:
OFFICIAL USE ONLY. DO NOT CHANGE
PROGRAM MANAGER (PM)
NAME:
PHONE:
PRIMARY PREPARER OF SURVEY RESPONSES (IF OTHER THAN PM)
NAME:
TITLE:
PHONE:

DOD COMPONENT:

A. [ ] Army
B. [ ] Navy
C. [ ] Air Force
D. [ ] Marine Corps
E. [ ] BMDO
F. [ ] Other (specify)

Names and offices of individual respondents will be kept confidential.

SURVEY OF PROGRAM USE OF JTA

I. Background Questions

1. My program staff are aware of the requirement to comply with the DoD Joint Technical Architecture (JTA):

   A. [ ] Yes (state source of awareness)
   B. [ ] No
   C. [ ] Don't know

2. Are you aware of your Component's (Service, DoD Agency or other) DoD JTA Implementation Plan?

   A. [ ] Yes
   B. [ ] No

3. To support the design of your system or upgrade, what do you use as the base technical architecture document? (mark all that apply):

   A. [ ] The DoD JTA (specify Version 1.0, 2.0, or 3.0)
   B. [ ] Your Component technical architecture (such as Joint Technical Architecture – Army) (provide name and version of Component technical architecture)
   C. [ ] Both the DoD JTA and a Component technical architecture (specify versions of the DoD JTA and name and version of the Component technical architectures used)
   D. [ ] Do not use a base technical architecture document (please explain)

4. My program has inserted DoD JTA or Component technical architecture requirements into the following (mark all that apply):

   A. [ ] RFP that proceeded most recent prime contract
   B. [ ] Most recent prime contract
   C. [ ] Modifications to most recent prime contract
   D. [ ] None (please provide explanation)

5. Our most recent prime contract supports the following acquisition phase:
   A. [ ] Program Definition and Risk Reduction
   B. [ ] Engineering and Manufacturing Development
   C. [ ] Production
   D. [ ] Other (specify)

6. My program cites DoD JTA or Component technical architecture requirements in our most recent prime contract through (mark all that apply):

   A. [ ] A blanket requirement for the contractor to use DoD JTA or Component technical architecture requirements
   B. [ ] A requirement for the contractor to use specified domains of the DoD JTA or Component technical architecture
   C. [ ] Citation of specific standards contained in the DoD JTA or Component technical architectures
   D. [ ] Contract does not cite the DoD JTA or Component technical architecture requirements (please provide explanation)

7. The following acquisition planning documents for my program included requirements for DoD JTA or Components technical architecture (mark all that apply):

   A. [ ] MNS
   B. [ ] ORD
   C. [ ] TEMP
   D. [ ] Other (specify)
   E. [ ] None (provide explanation)

8. My program is a:

   A. [ ] new system
   B. [ ] modification or upgrade to an existing system
   C. [ ] Other (please explain)

9. Is interoperability with other systems (in terms of producing, using, or exchanging information in any form electronically) a requirement in the development of your system or upgrade?

   A. [ ] Yes (please briefly describe the interoperability requirements)
   B. [ ] No

10. If interoperability is a requirement for your system or upgrade, is there an integrated architecture description for your system or upgrade? (Please explain)

    A. [ ] Yes
    B. [ ] No

II. Experience and Opinions on Implementing the JTA

1. In using the JTA, which of the following JTA domains for standards and protocols are applicable to your program:

   A. [ ] Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)
   B. [ ] Combat Support
   C. [ ] Modeling and Simulation
   D. [ ] Weapon Systems
   E. [ ] Not applicable (please explain)

2. Do you believe that JTA guidance contained in JTA Version 3.0, November 15, 1999, (see JTA Web home page - http://www-jta.itsi.disa.mil) is clear on the differences relating to program office use of standards the JTA classifies as "mandatory" and those it classifies as "emerging?"

   A. [ ] Yes
   B. [ ] No (please explain)
   C. [ ] Not applicable (please explain)

3. When your program office and contractor used the JTA and supporting guidance to select applicable standards and protocols for use in your system design, for the most part it was:

   A. [ ] Easy to identify or extract applicable standards and protocols
   B. [ ] With moderate effort, program and contractor staffs were able to identify the applicable standards and protocols
   C. [ ] Very difficult to search through and identify the applicable standards and protocols

4. Based on your program office's and contractor's experience in using the JTA, mark the statement with which you most closely agree:

   A. [ ] The JTA documentation provides informed users (design engineers with a good grasp on the mission, function, and basic plans for development or upgrade of a system) with clear guidance for determining which standards and protocols are applicable to their systems
   B. [ ] The JTA documentation needs to be modified to provide users with a more efficient means for obtaining a user-specific profile of the JTA and for determining which standards and protocols apply to their system (please provide any ideas you may have for improving JTA documentation)

5. Please comment on the appropriateness of the placement of standards within the JTA:

   Background. The JTA has a hierarchical placement of standards. Those standards contained in the JTA Core should be applicable to and meet the requirements of all weapon systems domains. If a standard cannot meet the requirements of a specific domain, it should be removed from the Core and placed in the appropriate domain annex(es). Likewise, when domain standards cannot meet subdomain-specific requirements, they should be removed from the domain annex and placed in the appropriate sub-domain annex(es).

   A. [ ] Standards in the JTA Core and Domains seem to be placed at the correct level in the JTA hierarchy
   B. [ ] Some JTA Core standards were not acceptable to meet our system requirements and therefore should be considered for placement at the domain or sub-domain level (Please provide examples)
   C. [ ] Some standards in JTA domains applicable to my system were not acceptable to meet my system requirements and therefore should be placed in the appropriate subdomain annex(es) (Please provide examples)

6. If you answered "b" or "c" to question 5, has your organization submitted a change request or comments to your JTA Component representative or through the format provided on the JTA Web home page (http://www-jta.itsi.disa.mil/)?

   A. [ ] Yes (provide the date, nature of suggestion or comment and the title/office of the official to whom you sent suggestion)
   B. [ ] No (provide reason why no change request or comment was submitted)
   C. [ ] Not applicable

7. Standards are to be selected for inclusion in the JTA only if they are critical to interoperability and meet all of the following criteria:

   - **Interoperability:** They enhance joint and potentially combined Service/ Agency information exchanges and support joint activities.
   - **Maturity:** They are technically mature (have strong support in the marketplace) and are stable.
   - **Implementability:** They are technically implementable.
   - **Public:** They are publicly available.
   - **Consistent with Authoritative Source:** They are consistent with law, regulation, policy, and guidance documents.

   Based on your program office's and contractor's experience in implementing standards from the JTA, standards applicable to your system:

   A. [ ] Met all the above selection criteria
   B. [ ] Did not meet one or more of the above selection criteria (Please identify the standard(s), the criteria they did not meet, and why they did not meet the criteria)

8. If you answered "b" to question 7, has your organization submitted a change request or comments on the JTA to your JTA Component representative or through the format provided on the JTA Web home page (http://www-jta.itsi.disa.mil)?

   A. [ ] Yes (provide date, synopsis of change request or comment, and, if applicable, the official to whom you sent suggestion)
   B. [ ] No (provide reason why change request or comment was not submitted)

9. If you used or planned to use a standard or standards in lieu of the standards mandated by the JTA, did your program office:

   A. [ ] Apply for and receive waiver approval for use of the alternate standard (Identify the approval authority)
   B. [ ] Apply for a waiver, but received disapproval (Identify the disapproving authority)
   C. [ ] Received waiver for some standards and disapproval for others (Identify the approval/disapproval authority)
   D. [ ] Used an alternate standard or standards but did not apply for a waiver (please explain reason for not applying for waiver)

10. Has your program been assessed for compliance with the JTA?

    A. [ ] Yes (provide date of assessment)
    B. [ ] No, but an assessment is planned for _____(date)
    C. [ ] No, none planned

11. If your program's compliance with the JTA has or will be assessed, the assessment was or will be performed by:

    A. [ ] Your program staff
    B. [ ] An outside office or group (please provide name of office or group and their relationship to your program office)

12. Overall, has the JTA been a benefit or a hindrance in the execution of your program?

    A. [ ] Benefit
    B. [ ] Hindrance
    C. [ ] No impact

    (If your answer is "a" or "b," please provide explanation)

13. Do you believe that implementation of the JTA is a viable means for:
    1) promoting the necessary level of interoperability between systems.
    2) promoting the use of an open systems approach.

    (Please provide an explanation for your selected answer.)

    A. [ ] Both 1 & 2
    B. [ ] Only 1
    C. [ ] Only 2
    D. [ ] Neither 1 nor 2

14. Based on your experience in implementing the JTA, please provide any comments or improvements you would make to OSD or your DoD Component's policies or procedures that would help other JTA users more effectively use the JTA to meet the objective of providing interoperable and affordable weapon systems.

Appendix E. Component Acquisition Executives and Program Executive Officers Responding to Survey Questionnaires

We received responses to the survey questionnaire from two of the four CAEs and 15 of the 19 PEOs.

CAE Responses. We received responses from the following two CAEs:

- Assistant Secretary of the Army (Acquisition, Logistics and Technology)
- Assistant Secretary of the Navy (Research, Development and Acquisition)

PEO Responses: We received responses from the following 15 Army, Navy, and Air Force PEOs:

Army:

- Air and Missile Defense
- Aviation
- Command, Control and Communications Systems
- Ground Combat and Support Systems
- Intelligence, Electronic Warfare and Sensors
- Tactical Missiles

Navy:

- Air ASW, Assault and Special Mission Programs
- Carriers
- Expeditionary Warfare
- Surface Strike
- Tactical Air Programs
- Theater Surface Combatants

Air Force:

- Command and Control
- Fighter and Bomber Programs
- Strategic Programs

Appendix F. Program Managers Responding to Survey Questionnaire

PMs from 81 major Defense acquisition programs provided responses to the JTA survey questionnaire.

Army PMs (17 respondents)

- ABRAMS UPGRADE - Abrams Tank Upgrade
- ATACMS-APAM - Army Tactical Missile System-Anti-Personnel Anti-Materiel Blocks I/IA
- ATACMS-BAT - Army Tactical Missile System-Brilliant Anti-Armor Submunition which includes ATACMS Blocks II/IIA, BAT, and BAT P3I
- ATIRCM/CMWS - Advance Threat Infrared Countermeasures/Common Missile Warning System
- BLACKHAWK (UH-60L) - Utility Helicopter
- BRADLEY UPGRADE - Bradley Fighting Vehicle System Upgrade
- CH-47F – Cargo Helicopter, Previously named ICH - Improved Cargo Helicopter - CH-47D helicopter upgrade program
- COMANCHE – Redesignated Reconnaissance Attack Helicopter from Light Helicopter
- CRUSADER – Redesignated CRUSADER from Advanced Field Artillery System/Future Armored Resupply Vehicle (AFAS/FARV)
- FMTV - Family of Medium Tactical Vehicles
- JAVELIN – Advanced Anti-Tank Weapon System – Medium
- JSTARS CGS – Redesignated Joint Surveillance Target Attack Radar System Common Ground Station from JSTARS Ground Station Module
- LONGBOW APACHE - Radar-Based Target Acquisition and Fire Control System which includes airframe modifications on the APACHE Helicopter
- LONGBOW HELLFIRE - HELLFIRE Missile System compatible with the LONGBOW Fire Control Radar
- MLRS UPGRADE - Multiple Launch Rocket System Upgrade
- SADARM - Sense and Destroy Armor
- SMART-T - Secure Mobile Anti-Jam Reliable Tactical - Terminal

Navy PMs (28 respondents):

- AAAV - Advanced Amphibious Assault Vehicle
- AIM-9X - Air-to-Air Missile Upgrade
- ALAM – Advanced Land Attack Missile
- CEC – Cooperative Engagement Capability
- CH-60S – Utility helicopter to replace existing CH-46D, HH-60H, SH-3, & UH-1N helicopters
- CVN 68 - NIMITZ Class Nuclear Powered Aircraft Carriers
- DD 21 – 21st Century Destroyer Program
- DDG 51 - Guided Missile Destroyer which includes basic ship and all variants
- E-2C REPRODUCTION - HAWKEYE Carrier-Based Early Warning Aircraft
- F/A-18E/F - AESA – Active Electronically Scanned Array Radar Upgrade Program for the F/A-18E/F aircraft
- F/A-18E/F - HORNET Naval Strike Fighter
- JSOW/BLU-108 – Joint Stand-Off Weapon with BLU-108 submunition
- JSOW/UNITARY - Joint Stand-Off Weapon with Unitary Warhead variant
- LHD 1 - Amphibious Assault Ship
- LPD 17 - Amphibious Assault Ship
- MIDS-LVT - Multi-Functional Information Distribution System-Low Volume Terminal
- NESP - Navy Extremely High Frequency (EHF) Satellite Communications (SATCOM) Program
- SH-60R - Multi-Mission Helicopter Upgrade
- SM 2 (Blocks I/II/III/IV) - Standard Surface-to-Air Missile 2 (Blocks I/II/III/IV)
- SSN 21/AN/BSY-2[1] - SEAWOLF Class Nuclear Attack Submarine/ Combat System
- SSN 774 - VIRGINIA CLASS Submarine
- STRATEGIC SEALIFT - Naval Transport Ship
- T-45TS - Undergraduate Jet Pilot Training System

[1]At our request, the PMs for the SSN 21 and AN/BSY-2 responded to the JTA survey questionnaire portions of this major Defense acquisition program separately. Therefore, we received two responses for this MDAP.

Navy PMs (continued):

- TACTICAL TOMAHAWK – Follow-on to TOMAHAWK Baseline missile program
- TRIDENT II MISSILE - Sea Launched Ballistic Missile
- USMC H-1 Upgrades (4BW/4BN) - United States Marine Corps Mid-life Upgrade to AH-1W Attack Helicopter and UH-1N Utility Helicopter
- V-22 - OSPREY - Joint Advanced Vertical Lift Aircraft

Air Force PMs (28 respondents):

- ABL - Airborne Laser
- ADVANCED EHF – Advanced Extremely High Frequency Program
- AMRAAM - Advanced Medium Range Air-to-Air Missile
- AWACS RSIP (E-3) - Airborne Warning and Control System Radar Systems Improvement Program
- B-1 CMUP – B-1 Lancer Penetrating Bomber Conventional Mission Upgrade Programs (CMUP)
- B-2A - Spirit Stealth Bomber
- C-5 RERP – C-5 Aircraft Reliability and Re-engineering Program
- C-17A - Globemaster III Advanced Cargo Aircraft
- C-130 AMP – C-130 Aircraft Avionics Modernization Program
- C-130J - Hercules Cargo Aircraft
- DMSP – Defense Meteorological Satellite System
- EELV - Evolved Expendable Launch Vehicle
- F-22 - Advanced Tactical Fighter
- GBS – Global Broadcast Service
- JASSM - Joint Air-to-Surface Standoff Missile
- JDAM - Joint Direct Attack Munition
- JPATS - Joint Primary Aircraft Training System
- JSIMS - Joint Simulation System Program
- JSTARS - Joint Surveillance Target Attack Radar System (Aircraft)
- MILSTAR - Satellite Low Data Rate/Medium Data Rate Communications System
- MINUTEMAN III GRP – Minuteman III Guidance Replacement Program
- MINUTEMAN III PRP – Minuteman III Propulsion Replacement Program

Air Force PMs (continued):

- NAS – National Airspace System
- RTIP – Radar Technology Insertion Program for JSTARS Aircraft
- SBIRS[2] - Space-Based Infrared System Program; efforts include the SBIRS High Component and the SBIRS Low Component
- TITAN IV – Space Booster
- WIDEBAND GAPFILLER – Wideband communications satellite system to fill the gap between older communications satellite system and Advanced Wideband System

DoD PMs (8 respondents):

Ballistic Missile Defense Organization Programs:

- MEADS - Medium Extended Air Defense System (Army Executing Agent)
- Navy Area TBMD - Navy Area Theater Ballistic Missile Defense (Navy Executing Agent)
- NMD - National Missile Defense Program
- NTW - Navy Theater Wide Ballistic Missile Defense (Navy Executing Agent)
- PATRIOT PAC-3 - Patriot Advanced Capability (Army Executing Agent)
- THAAD - Theater High Altitude Area Defense (Army Executing Agent)

DoD PMs – Other:

- JSF - Joint Strike Fighter (Reporting alternates between the Navy and Air Force Acquisition Executives; program currently reports through the Air Force Acquisition Executive)
- NPOESS - National Polar-Orbiting Operational Environmental Satellite System Multi-Agency weather satellite system with Department of Commerce as lead agency

[2] At our request, the PM for the SBIRS completed a JTA survey questionnaire for the SBIRS High Component portion and the SBIRS Low Component. Therefore, we received two responses for this MDAP.

Appendix G. Acquisition Manager Suggestions and Comments on Improving the Joint Technical Architecture

We received comments and suggestions from acquisition managers in response to the following question on the CAE and PEO and the PM survey questionnaires: Based on your experience in implementing the JTA, please provide any comments or improvements you would make to Office of the Secretary of Defense or your DoD Component's policies or procedures that would help other JTA users more effectively use the JTA to meet the objective of providing interoperable and affordable weapon systems:

- PMs should be active participants in the JTA standards formation,
- allow the Services, down to the system command level, to manage JTA,
- conduct JTA training seminars for engineers, system architects, and PMs (two responses),
- reconcile the differences between the DoD JTA and the Army and Air Force JTAs or eliminate the Service unique JTAs,
- develop integrated, cross-program JTA standards implementation schedules and funding,
- implement an overarching technical architecture,
- ensure that all weapon system interfaces (your system and external systems) implement the JTA standards (two responses),
- establish a JTA baseline and change it only when absolutely necessary,
- consolidate the various interoperability certification processes between DoD and Military Departments,
- remove Defense Information Infrastructure Common Operating Environment mandates from the JTA core document and place it in the applicable functional domain and sub-domain annexes,
- reexamine JTA, JTA-Army, and Defense Information Infrastructure Common Operating Environment to determine if they still meet the original intent (interoperability between systems),
- draw on the experience of Government research agencies and industry research for determining the JTA standards for avionics architectures,
- required use of the DoD JTA and JTA-Army standards appears to be in conflict with the goals for acquisition streamlining, and
- two potential problems are caused by the mandatory use of JTA:
  - non-compatibility with legacy systems and
  - difficulties with the total system performance responsibility arena, such as, maintenance.

Appendix H. Baseline Responses for Each Survey Question

CAEs and PEOs returned 17 survey questionnaires and PMs returned 81 survey questionnaires. Because each respondent did not answer every question, there were varying numbers, or baselines, of survey responses to each question. Table H-1 shows the response baselines for the CAE and PEO survey questionnaire and Table H-2 shows response baselines for the PM survey questionnaire.

Table H-1. Component Acquisition Executive and Program Executive Officer Survey Responses by Question

Survey Question Number	Baseline	Army	Navy	Air Force
1.	16	7	6	3
2.	15	7	5	3
3.	16	7	6	3
4.	16	7	6	3
5.	16	7	6	3
6.	16	7	6	3
7.	16	7	6	3
8.	15	7	5	3
9.	16	7	6	3
10.	16	7	6	3
11.	16	7	6	3
12.	17	7	7	3
13.	16	7	6	3
14.	Comments question			

Table H-2. Program Manager Survey Responses by Question

Survey Question Number		Baseline	Army	Navy	Air Force	Other*
Background	1.	81	17	28	26	10
	2.	80	17	28	25	10
	3.	80	17	28	25	10
	4.	78	17	27	24	10
	5.	79	17	27	25	10
	6.	76	16	27	23	10
	7.	79	17	28	25	10
	8.	80	17	28	25	10
	9.	80	17	28	25	10
	10.	72	14	26	22	10
Experience	1.	78	17	26	25	10
	2.	76	17	26	24	9
	3.	59	15	19	16	9
	4.	61	15	21	16	9
	5.	59	14	20	17	8
	6.	8	3	1	3	1
	7.	56	13	21	14	8
	8.	15	4	4	5	2
	9	27	7	11	6	3
	10.	72	16	23	23	10
	11.	37	8	10	12	7
	12.	64	15	19	21	9
	13.	66	15	19	22	10
	14.	Comments question				

* Other: Ballistic Missile Defense Organization (6 PMs) and Joint Programs (4 PMs)

Appendix I. Key Acquisition Planning and Contract-Related Documents

Acquisition planning and contract-related documents serve as a roadmap to PMs and contractors for program execution from initiation through postproduction support. Therefore, the Joint Chiefs of Staff and supporting organizations involved in the weapons systems requirements generation process and the DoD acquisition community must include the JTA standards requirements in key acquisition planning and contract-related documents to maximize JTA effectiveness as a tool for achieving overall DoD system interoperability. The key acquisition planning documents are the mission needs statement and the operational requirements document. The contract-related documents are the request for proposal, the contract statement of work, and contract modifications. The following discusses the general purpose of each of the two acquisition planning documents and the three contract-related documents as well as the document's relationship to PM implementation of the JTA standards.

Acquisition Planning Documents

- **Mission Needs Statement.** The mission needs statement is a product of the requirements generation system. Chairman of the Joint Chiefs of Staff Instruction 3170.01B, "Requirements Generation System," April 15, 2001, requires DoD Components to define mission needs in broad operational terms in a mission needs statement. If DoD decisionmakers determine that a mission needs statement supports the need for a new system or system upgrade, the DoD Components use the broad requirements defined in the mission needs statement to develop the more detailed system requirements in the operational requirements document. The Instruction promotes warfighter use of the JTA standards by requiring that mission needs statements define operational needs in conformance with DoD interoperability standards.

- **Operational Requirements Document.** Like the mission needs statement, the operational requirements document is a product of the requirements generation system that documents required operational performance parameters for the proposed concept or system. Chairman of the Joint Chiefs of Staff Instruction 3170.01B requires that the DoD Components, in the operational requirements document, include the performance parameters, including interoperability, which an acquisition program must meet. The Instruction promotes use of JTA by requiring that system operational requirements documents specify that the system must comply with applicable information technology standards in JTA.

Contract-Related Documents

- **Requests for Proposal.** The Federal Acquisition Regulation, Subpart 15.203, "Requests for Proposal," October 1, 1999, requires contracting officers for negotiated acquisitions to use requests for proposals to communicate Government requirements to prospective contractors and to solicit contractor proposals. Section C of the request for proposal has a section that includes "External Interfaces" and "Compliance with Standards." It is the responsibility of the PM to identify the external interface standards required and to provide a listing of all relevant JTA standards and other standards necessary for the contractor to design into National Security Systems and information technology systems. Through this proposal section, the contracting officer can advise prospective contract offerors that they will be required to develop a system using standards contained in the JTA and that their proposal must address implementing the standards contained in the JTA if they want to be considered as a responsive offeror to the request for proposals.

- **Contract Statement of Work.** The Federal Acquisition Regulation, Subparts 15.406-1, "Uniform Contract Format," and 15.406-2, "Part 1 - The Schedule," requires agency solicitations for contracts to include a statement of work or other description that defines the Government's requirements. PM inclusion of the JTA standards requirements in this document is necessary to ensure that the contractor uses JTA in the system design approach. PMs can also use provisions in the contract statement of work, along with the contract data requirements list, to require the contractor to identify instances where cost, schedule, and performance considerations justify submitting a request to DoD authorities for waiver of the JTA standards requirements.

- **Contract Modifications.** PMs can use contract modifications to include the JTA standards in system design when they have not earlier specified the standards in the basic contract. Like the statement of work, PMs can also use provisions in the contract statement of work, along with the contract data requirements list, to require the contractor to identify instances where cost, schedule, and performance considerations justify submitting a request to DoD authorities for waiver of the JTA standards requirements.

Appendix J. Report Distribution

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